April 1931

Drug Markets

Established 1914

The Magazine of the Manufacturing Drug Trade

Editorials

Pharmacopoeia, Ltd.—New York City Drug Control—Status Quo—Antiseptic Merit—When Will They Be Stopped?—Uncertain Markets—An Indian Gift—Blonde or Psyllium Seed?

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Psyllium Seed

Psyllium Seed continues to occupy the limelight in new drug trade developments of real commercial importance. We are continually in search of new and more complete information regarding this market both from the point of view of purchase of supplies as well as from the view point of the sale of packaged goods. Future articles will deal with still more phases of the subject that have not heretofore been treated in print.

VOL. XXVIII **DRUG MARKETS, INC.** NUMBER 4

PUBLISHERS

Publication Office, 28 Renne Ave., Pittsfield, Mass. Editorial and General Office, 101 W. 31st St., N.Y. City

Editor
THOMAS R. FARRELL

Business Manager
FRAZER V. SINCLAIR

PUBLISHED MONTHLY AT PITTSFIELD, MASS., SUBSCRIPTION PRICE, TWO DOLLARS A YEAR, IN ADVANCE, POSTAGE PAID TO ALL COUNTRIES, THREE WEEKS' NOTICE IS REQUIRED TO CHANGE SUBSCRIBER'S ADDRESSES, AND WHEN NOTIFYING KINDLY GIVE BOTH OLD AND NEW ADDRESSES; PRINTED BY THE SUN PRINTING COMPANY, PITTSFIELD, MASS. ENTERED AS SECOND CLASS MATTER, JANUARY 1, 1928 AT THE POST OFFICE AT PITTSFIELD, MASS., UNDER THE ACT OF MARCH 3, 1879.

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ESTABLISHED IN 1798

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Buyers' Guide

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Ungerer & Co.
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Sun Tube Corp.
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INSIDE THREAD CAPS

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General Felt Products Inc.

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Anchor Cap & Closure Corp.
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However great the need, however zealous the desire, however fine the ideal; there can be no continuance of growth, no endurance of success, without organization.

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It has been the honor of the MM&R organization, since its inception in 1895, to supply an ever increasing clientele with their requirements of MM&R products.

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Nearest Approach to an All-Purpose Liner

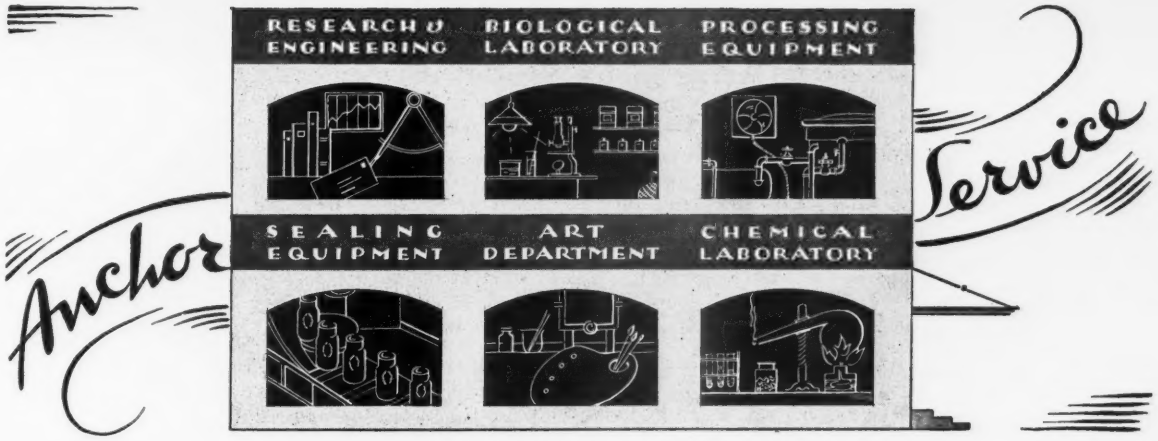
OUR painstaking effort to break away from the traditional use of certain varnish coatings on liner paper that were, in fact, developed primarily for electrical insulation uses has been rewarded by the development of REZIZTOL.

For a decade cap manufacturers have desired a liner paper more moisture proof, more resistant to alkali and acid, as free as possible from odor, and with a clean, sanitary appearance.

REZIZTOL has proved to be the nearest approach to a liner that would meet these specifications.

General Felt Products Inc.

BUSH TERMINAL BROOKLYN, N.Y.



Here Are Complete Modern Packing Facilities and Equipment

to help you solve your problems

"TO HELP you solve your problems" is no idle phrase. It is intended as a direct invitation. Which hundreds of others have taken advantage of in the past. And which we urge you also to use. ●

Furthermore, there is more than just good intentions back of this offer. For Anchor has every facility for studying your problems—trained research technicians; men thoroughly experienced in packaging and processing; an enlarged and newly equipped chemical and biological laboratory; a file of invaluable data covering investigations of every sort of product; actual processing equipment—in short, a complete packing plant in miniature. In addition, we maintain a complete art department to assist you in the design of your package.

Laboratory tests are fine, as far as they go. But nothing can take the place of experiment under actual working conditions as in your plant, and such as Anchor duplicates in their Research Packing Department. ●

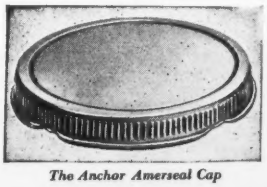
The Anchor conception of service goes beyond merely recommending the proper type of closure or liner. Frequently we are able to make worthwhile suggestions on preparation of the product, containers, or methods of increasing plant efficiency and reducing production costs.

If as yet you do not pack in glass, or if you feel there are possibilities of improving your present glass package—do not hesitate to put your problems up to Anchor. A good time to do it is *now*—the easiest way is simply to send us one of your packages. ●

Anchor Cap & Closure Corporation

Long Island City, N.Y. Toronto, Canada

Branch Offices in all principal cities



The Anchor Amerseal Cap

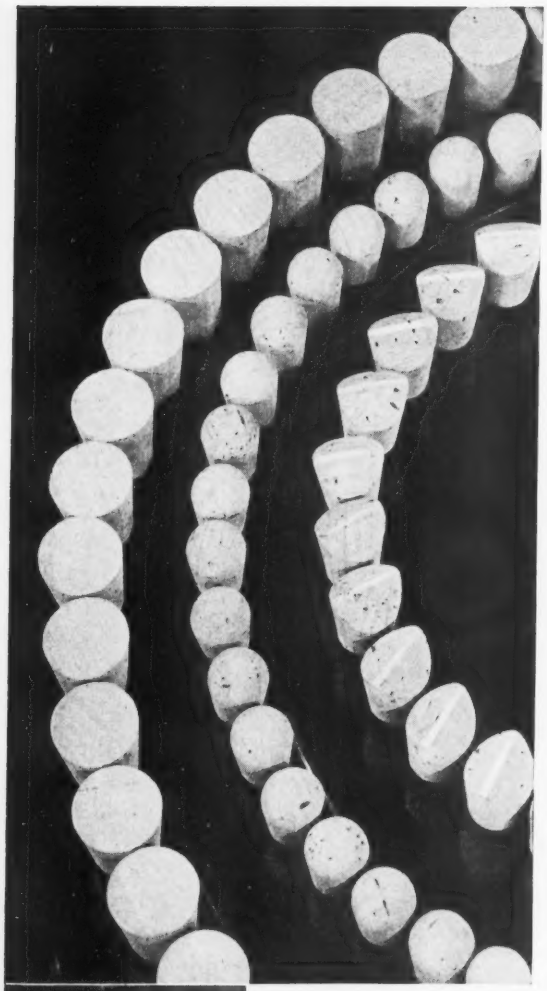
The Anchor Molded Bottle Cap

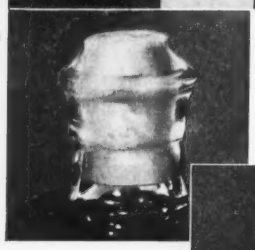
Here are Anchor's most popular types of caps for drug and cosmetic items, the Anchor Amerseal Cap (left) and two styles of Molded Caps. However, Anchor holds no brief for any particular type but makes 15 different styles to meet every sealing condition: Anchor C Caps; Anchor D Caps; Anchor Amerseal Caps; Anchor Two-piece Amerseal Caps; Anchor Domed Amerseal Caps; Anchor Paragon Caps; Anchor Band Caps; Anchor A Clipper Caps; Anchor R Clipper Caps; Anchor Continuous Thread Bottle Caps; Anchor Continuous Thread Caps; Anchor Two-piece Continuous Thread Caps; Anchor Deep Screw Caps; Anchor Two-piece Deep Screw Caps; Anchor Molded Caps.

Also makers of Sealing Machines; Pressure Processing Systems.

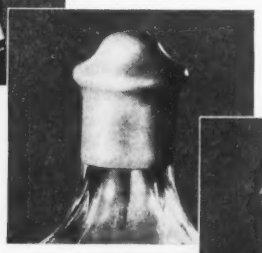
The Anchor Molded Jar Cap

Anchor CONSUMER-APPROVED CLOSURES for every Packing Need





Would you like to see your bottle dressed up in round or wedge top corks? Send us some bottles to be fitted or, if you prefer, write for samples and prices.



For the final colorful touch over all types of closures, consider Du Pont Cellulose Caps. Prevent tampering, contamination, and leakage. They are now handled by Armstrong.

CORKS of all kinds – and *other closures too*

NO matter what type of corks you use, Armstrong can supply them. Made in every size and shape you require, Armstrong's Corks are honestly graded to unvarying standards.

In addition to corks of every description, Armstrong offers a complete assortment of other types of closures. This varied line includes Artmold Caps and Jar Covers, Cellulose Caps and Bands, Embossed Top Corks, Crowns, Rubber Stoppers, Cap Liners, Daubers, and Applicators of all kinds. From one source of supply you can obtain closures to fill every need.

If you are uncertain as to which closure will seal your package properly and look the smartest, too, let our closure specialists assist you. Since 1860 Armstrong has been solving the problems of closure users. This long experience, and our complete laboratory facilities for running tests assure you of sound recommendations on your problems.

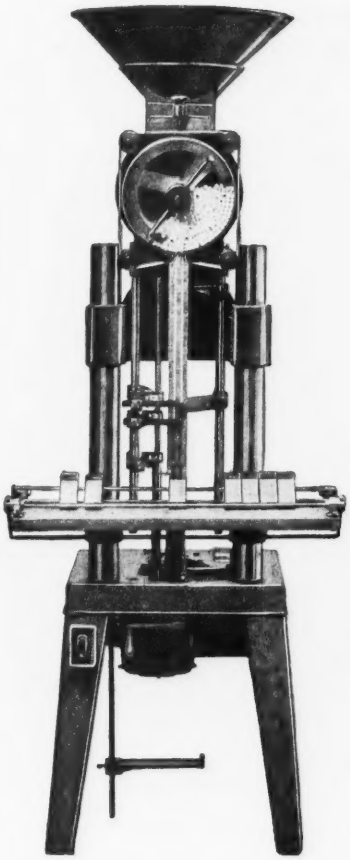
On matters of design, too, Armstrong invites your questions. Let our designers suggest how you can attract buying eyes to your package with colorful, well designed closures.

This service is free and without obligation. Simply send a few sample bottles and full details of your problems to Armstrong Cork Co., 913 Arch St., Lancaster, Pa.

Armstrong's Closures

CORKS OF ALL KINDS . . . ARTMOLD CAPS . . . EMBOSSED TOP CORKS . . . DAUBERS . . . CROWNS . . . CELLULOSE CAPS
CELLULOSE BEVERAGE BANDS . . . APPLICATORS OF ALL KINDS . . . RUBBER STOPPERS . . . CAP LINERS . . . BUNGS

THERE IS NOTHING LIKE IT!



It operates with speed and accuracy

THE UNIVERSAL TABLET COUNTING AND FILLING MACHINE

Fill the hopper—the machine does the rest
Your product is untouched by human hands
Accurately counts your container quantities
Packs any shape or size of tablets or pills
Fills any type of container easily and quickly
All jamming eliminated in small-necked bottles
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Does not require the use of a skilled operator
Quickly adjusted from one product to another
Very accessible for cleaning between set-ups
Several times faster than hand-filling methods
Full visual operation from hopper to container
Sturdily built with nothing to get out of order
Will materially cut your labor packaging costs

The application and scope of this new universal machine will surprise you and we shall be pleased to demonstrate its laborsaving possibilities in packing your own products. This will place you under no obligation whatsoever.

IVERS-LEE COMPANY
215 CENTRAL AVENUE
NEWARK, N. J.

ENGLAND **AUSTRALIA**

You can CHECK THIS CHALK *in* ABSORPTIVE PROPERTIES *and* BINDING POWER

SNOW TOP takes up the essential oils and other constituents of good tooth paste and holds them in close bond.

. . . and while you are checking SNOW TOP *O. K.* on these important qualifications, check it also as unexcelled in purity, whiteness, fineness of texture and uniformity.

This American product is specially manufactured. By every recognized test it measures up to the highest standards—*plus a marked advantage in service and price.*

SNOW TOP
is supplied uniformly to your specifications as to bulk and absorptive power.

SNOW TOP

See Our Exhibit Booths 87-88 at the CHEMICAL SHOW

Industrial Chemical Sales Co., Inc.

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PRECIPITATED CHALK

"THERE'S NONE BETTER THAN SNOW TOP"

CRETA PRÆCIP U. S. P.

The Package widens the Ripples of Distribution

TO the farthermost shore of your market and beyond, the properly designed package will widen the ripples of distribution. Thrown into the pond of the consuming market, it will make a circle of waves that will outride the stir of competition.

For those products to which it is adapted there is no more convenient container, none more in public favor than a well-made, well-designed tube.

Designing and manufacturing collapsible tubes for the "best sellers" of the industry has been WIRZ work for nearly a century.

A. H. WIRZ, Inc.

ESTABLISHED 1836

Collapsible Tubes *Metal Sprinkler Tops*

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Phone: MURray Hill 3447

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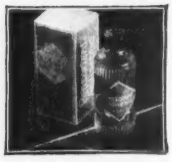
Phone: HARrison 3015-3016

LOS ANGELES
1251 E. Seventh Street
Phone: TUCker 4150

Leak-proof Sprinkler Tops in nickel, gold and bakelite finishes

Do old style caps outmode your package?

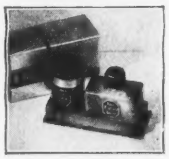


Styles change with packages just as surely, though perhaps not quite so often, as they do with millinery. The woman of today favors the modish package just as she does modish gowns or hats.

Styling packages begins with the closure. Colorful Bakelite Molded caps add a pleasing modern note to bottles, tubes and jars, and even the simplest sort of bottle is lifted out of the commonplace. But when these caps are made a harmonious element of container and label design, they are especially attractive.

Bakelite Molded possesses other advantages for closures in addition to fine appearance. It is uncorrodible and highly resistant to chemical action. It also is hard, strong and has a permanently rich lustre. Closures made of it thread on and off easily, and seal tightly. Many colors are available so it usually is possible to select one in harmony with the coloring of a package.

We will gladly cooperate with you in adapting Bakelite Molded closures to your packages, and show you a wide assortment of these caps now used by others. Enlisting our aid involves no obligation whatsoever.



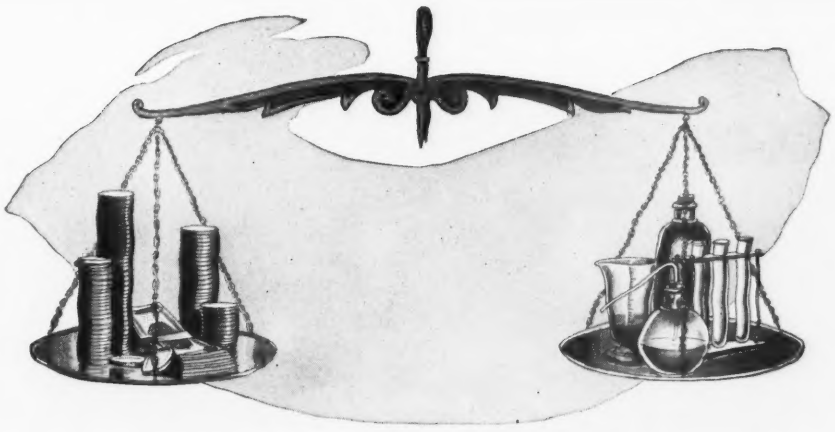
BAKELITE CORPORATION
247 Park Avenue, New York, N.Y. Chicago Office: 635 W. 22nd Street
BAKELITE CORP. OF CANADA, LTD., 163 Dufferin St., Toronto, Ont.

BAKELITE

REGISTERED U. S. PAT. OFF.

The registered trade marks shown above distinguish materials manufactured by Bakelite Corporation. Under the capital "B" is the numerical sign for infinity, or unlimited quantity. It symbolizes the infinite number of present and future uses of Bakelite Corporation's products.

THE MATERIAL OF A THOUSAND USES



ECONOMY (I am again resorting to the *faithful old copy book*) doesn't mean paying the least for a product. Rather, it means getting the most for your money.

That *most* may mean any one of a number of things . . . a product which may be used with a marked saving in time and labor; some form of service which goes along with the product; or it may mean a better appearing product. These intangibles when thrown on the scale of comparison usually outweigh the small increase in cost which is necessary to cover them.

The manufacturer who bluntly dismisses such reasoning with, "But I have no need for such things," seldom makes an effort to find out whether he has or not. He may be blinded by the saving effected in the first cost while paying out more money for labor. He may be handicapped for want of intelligent service necessary to properly use the product. He may be losing sales because of inferior appearance of his finished product while blaming it on his salesmen.

An accurate cost record or a fair comparison of competitive products under actual manufacturing and selling conditions might provide some interesting facts and figures.

Everything has a faculty of balancing itself one way or another. Nobody gets something for nothing. Cheap raw materials, equipment and supplies invariably cost more in the end. While the fairly priced product pays its own way as it is used. It's an immutable law . . . and a just one.

Dart Smith

PHOENIX-HERMETIC COMPANY
Metal Caps for Glass Packages
CHICAGO NEW YORK

Offices: New York, Philadelphia, Boston, Rochester, Chicago, San Francisco, Los Angeles, Cleveland, Cincinnati, St. Louis
Plants: 2444 W. 16th St., Chicago; 14th Ave. and 38th St., Brooklyn

PHOENIX *Metal Caps*

WHEN you buy a metal cap from the PHOENIX-HERMETIC COMPANY you are not merely buying a piece of metal and the labor required to shape it into a closure for your package. Instead, you are buying research, experience and service.

There is no mention of these three words in our contracts or invoices, but they are a part of every shipment which is made to you.

Research . . . which means the constant improvement in liners, rubber compositions, lacquers, decorating materials and methods of sealing.

Experience . . . which means the rejection of impractical theories before they result in loss to the metal cap user, and the standardization of dependable methods of sealing.

Service . . . which means skilled direction in the packaging of foods, pharmaceuticals, proprietaries, toilet preparations and chemicals and ability to help you in that occasional emergency.

Regardless of who supplies your metal caps, or what you pay for them, the chances are that you are paying for Research, Experience and Service whether you are getting it or not. You may be saving a small amount in the initial cost of metal caps yet more than paying the difference in poor appearance, trouble, delay, extra labor, uncertainty, dissatisfaction, returned goods and lost sales.

A year's experience with PHOENIX *Metal Caps*, during which time actual comparisons may be made, might provide some interesting facts and figures. Or, if you wish to save time, ask any PHOENIX customer.

C T Screw Cap

THE
OWENS-ILLINOIS GLASS COMPANY
TOLEDO, OHIO

Will Announce

WITHIN THIRTY DAYS

An Entirely New Series

of

DESIGNS

in

BOTTLES AND JARS

Of Particular Interest to both
Large and Small Manufacturers

of

PERFUMES
COSMETICS · PHARMACEUTICALS
& PROPRIETARIES

COMPLETE COPY OF THIS 4-PAGE ARTICLE FREE ON REQUEST

This article has been written at the suggestion of the United States Department of Commerce in the belief that the package developed has many advantages over those now used and that many other firms may wish to benefit by the experience

At left—Figure 1—Completed unit package and beside it wrapped bottle with the absorbent material cut away

New Method of Packing Liquids for Shipment in International Mails

By
L. H. WEBSTER
Export Manager, Smith, Kline & French Laboratories, Philadelphia

WHILE the bulk of the export trade of the United States moves by freight, parcel post has lately found an increasingly important place as an alternate method of shipment for certain classes of merchandise. In the case of Latin America, especially, freight transportation to interior cities is often both slow and expensive, although perfectly satisfactory to the various ports. On this account there has been an increasing pressure put upon exporters in the United States to ship by parcel post, not only those light, non-breakable articles for which parcel post transportation is eminently suited, but also heavier, often breakable articles, especially liquids in glass bottles.

Liquids in glass are of [illegible] capable of causing a [illegible]

liquid there must be provided bran, sawdust, or other absorbent material in sufficent quantity to absorb all the liquid contents in the event of breakage."

Also, although these regulations do not specifically require it, the authorities usually suggest that one of the receptacles should be waterproof.

To comply with the above regulations meant an increased packing cost for labor, absorbent material and suitable containers, the weight of the completed package was usually excessive, and, worst of all, if a bottle leaked the liquid spread through all the absorbent material, with the result that every other package in the entire container was usually so soiled as to be unsalable. In case of a breakage, although there was enough absorbent material between the two containers, if the total amount [illegible] was considered, some of the liquid often leaked out [illegible] or corner of the package before the absorbent [illegible] a chance to pick it all up. Naturally it was [illegible] to a customer to receive a package i[illegible]

MAIL the coupon and we will send you a complete copy of this helpful 4-page article, together with samples of the economical Kimpak recommended for parcel post packing of liquids and breakables. Kimpak is snow-white, light and cushiony as down, and exceeds parcel post requirements for absorbency. Furthermore, it is so beautiful and clean that it adds to the quality impression when your package is opened.

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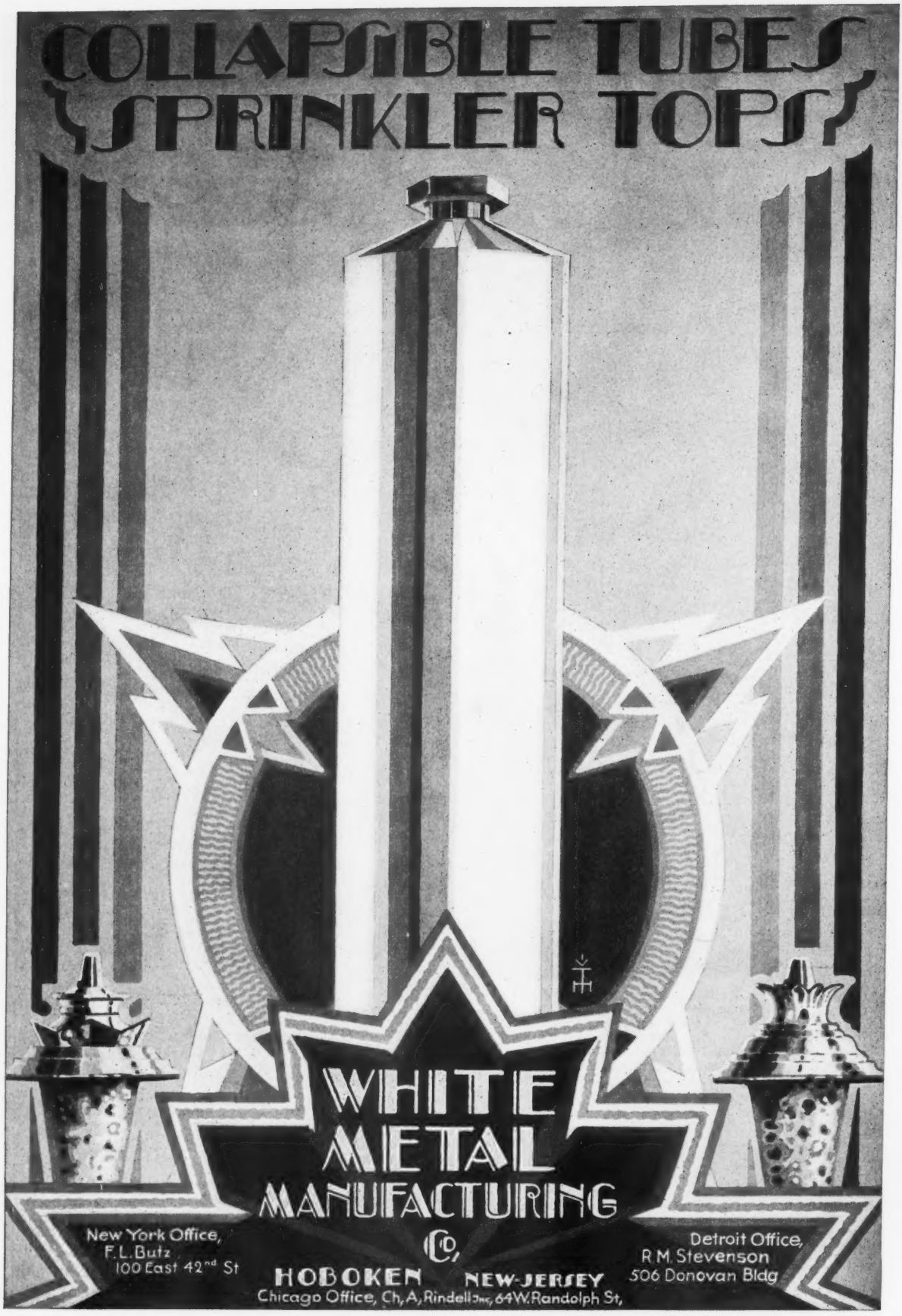
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES
CREPE WADDING
ABSORBS 16 TIMES ITS WEIGHT IN MOISTURE

MAIL COUPON!

Kimberly-Clark Corporation, Neenah, Wis. DM-4
Address home office or sales office at
8 S. Michigan Ave., Chicago; 122 E. 42nd St., New York City
Please send me complete article on mail packing and samples of Kimpak.
Name .....
Address .....
Attention .....
Our product is .....
☐ We are sending a sample of *our* products as now packed. Please repack with Kimpak and return.


COLLAPSIBLE TUBES
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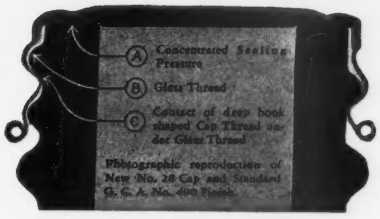
A NEW AND BETTER SCREW CAP

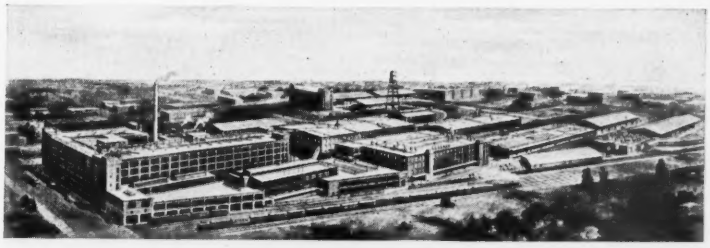
Here is the latest development in Crown Screw Caps —a closure that embodies new and exclusive features of far reaching importance in the sealing of glass


A Concentrated Sealing Pressure
B Glass Thread
C Contact of deep hook shaped Cap Thread under Glass Thread
Photographic reproduction of New No. 28 Cap and Standard C. C. & S. No. 400 Finish

packed products. Years of research and unlimited expenditures have gone into its development. Its introduction marks a new era in the use of this type of seal.

The sectional diagram shows the new deep threads of this improved Screw Cap. Note how they hug in under the glass threads, reducing friction and wedging pressure and giving more sealing pressure. This Screw Cap will not ride, lock or jam. The new sealing bead concentrates the down pressure on the liner and the glass sealing surface, while the new threading method preserves the decoration of the cap — bending instead of stretching the tinplate.

Look to "Sealing Headquarters" to provide you with the *right closure for your product.* This modern plant, the largest of its kind in the world, covers more than seventeen acres and houses not only the finest production equipment but also a wealth of experience and technical skill. The Research Laboratories are unsurpassed in the completeness of their equipment and in the service they can render you.



The skill and experience of our engineering department has brought this type of closure to its highest development. Correct design, combined with precision manufacture insures accurate fit and safe sealing, while the perfecting of special liners to meet the requirements of each and every product is a feature of the work of our Research Laboratories.

Write today for full information on the many advantages of this new and greatly improved Crown Screw Cap which offers superior sealing qualities at a lower price.

CROWN CORK & SEAL CO. BALTIMORE, MD.

▼ ▼ *World's Largest Makers of Bottle Caps and Closures for Glass Containers* ▼ ▼

The three pieces
Assembled as shown
Seal is seated on the bottle
Sides gently rolled into bottle threads
Perfect closure and reclosure is assured

How

Alseco Rolled-On Seals are accurately tailored to fit each individual bottle

It's literally true, that Alseco Rolled-On Seals made of Alcoa Aluminum, are accurately fitted to each individual bottle. First the seal is seated, then the threads are rolled into the cap. Because the seal is applied unthreaded, the exactly correct amount of vertical, stationary top pressure is applied with minimum bottle breakage. Then, with the sealing medium held under this constant pressure, the threads are rolled into the cap, tailored to fit the threads on the bottle. Thus the proper sealing pressure is maintained until the cap is removed by the ultimate consumer. This ideal sealing operation is accomplished at almost any desired speed.

Alseco Rolled-On Seals are the only seals that combine positive closure at desirable speeds, minimum bottle breakage, easy opening and tight re-sealing. Bottles, fitted with Alseco Rolled-On Seals, insure that the original strength of the contents, even of volatile essences, is retained to the very last drop.

Consumers appreciate the convenience of Alseco Rolled-On Seals; and recall your brand when reordering. Made of Alcoa Aluminum, Alseco Rolled-On Seals help build up repeat business, thus increasing your profit margin by reducing your sales costs.

Alseco Rolled-On Seals are available in a wide variety of sizes and in any solid color, lacquer, enamel or lithograph design. We will gladly advise with you on capping and sealing problems. Address ALUMINUM SEAL COMPANY; NEW KENSINGTON, PENNSYLVANIA.

ALSECO ROLLED-ON SEALS

Made of Alcoa Aluminum

THE SELLING POWER OF COLOR AND DESIGN

Art . . . powerful color . . . striking design . . . to spot your product at the point of sale and impress it upon the buyer's mind so he will look for it again.

America's leading makers of toilet preparations have found that their quest for better tubes ends here.

Suggestions that may make your product still more attractive . . . are yours for the asking.

NEW ENGLAND COLLAPSIBLE TUBE COMPANY

17-35 Waller St., New London, Conn.
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New York Office: 370 Lexington Ave., (Cor. 41st St.)

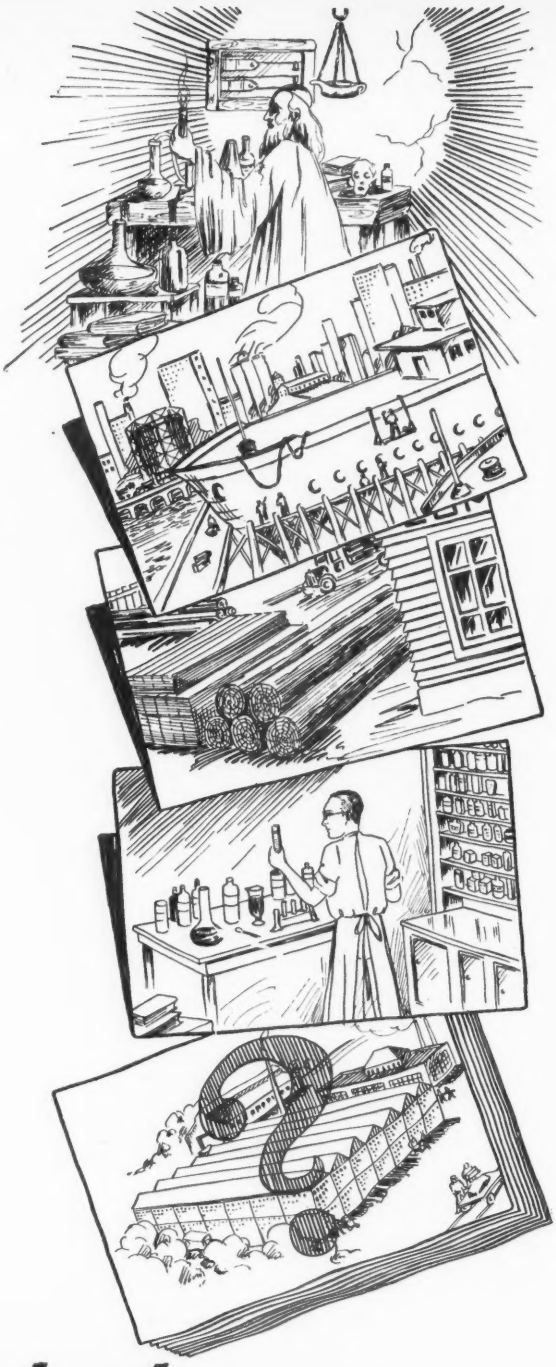
NEW ENGLAND COLLAPSIBLE TUBES

EVOLUTION!

The Ancient "Mother of Metals" Becomes Mother of All Mercurials Used in Medicine and Industry.

ALCHEMISTS believed "liquid silver" or mercury to be one of the three basic elements from which all other matter was formed. It was sometimes called "The Mother of Metals," because it was believed to constitute a necessary part of all metals. The ancients knew something of its properties. As early as the 10th Century Corrosive Sublimate was mentioned, although the metallic nature of Mercury was not discovered until 1760 by J. A. Braun.

Since then Mercury compounds have come into wide use. In tanneries Corrosive Sublimate disinfects the hides. In the lumber industry it preserves the wood against decay. In the shipping industry Mercury Oxide enters into paint that repels barnacles from ship bottoms. They are used in dairies, poultry yards, on potato and fruit farms and even on golf courses, as valuable fungicides and insecticides. For medicinal purposes the Metal itself and many of the compounds have a large use in the preparation of ointments, salves, lotions, etc., yet it is certain that the properties of Mercury compounds will point the way to further uses still to be discovered.



Since 1888 Mallinckrodt Chemical Works has developed a line of fifty-one Mercurials. Among these are—

Mercuric Chloride or Corrosive Sublimate
Calomel
Mercury Oxide, Red and Yellow
Mercury Ammoniated

and others that your needs may require.

Forty-three years of experience in manufacturing mercurials and developing specific applications in many industries may be helpful in your business. Write our nearest branch—consultation is welcome. ***Mallinckrodt Chemical Works.***

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St. Louis
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FINE CHEMICALS

Drug Markets

Vol. XXVIII APRIL 1931 No. 4

Pharmacopoeia, Ltd.

DR. DURRETT is quite outspoken in his acceptance for the Food and Drug Adminsitration of the responsibility for interpreting ambiguities in the Pharmacoepoeia and in his determination that the Administration shall deviate from the specifications of the Pharmacopoeia when, in the opinion of the Administration, these standards are not correct. Dr. Durrett represents that the Administration stands in this matter as it does in all others—"If we are not right, let the courts tell us so." There is no modesty apparent in Dr. Durrett's attitude, he baldly declares. "We know more about the Pharmacopoeia than anyone else."

SO FAR as manufacturers—who, of necessity must work in accord with the Administration's ideas—are concerned, this policy is well and good. It means that impossible standards appearing in revisions of the U. S. P. will not stop these manufacturers from supplying the official preparations that pharmacy is trying so hard to promote. Nor will impossible standards prevent manufacturers from carrying on the labels of their specialties the names of those items which nature has decided will not be available in the quality which a group of professional pharmacists refuse to abandon.

IF THE Pharmacopoeia Revision Committee is to continue to shirk its duty of interim revision of those standards which are either incorrect in their inception or are impossible of attainment due to natural causes, then it must allow its position slowly to be undermined by the Food and Drug Administration. While Dr. Durrett states plainly enough that the Administration has no authority for setting up standards of drugs, the action of the Administration in changing Pharmacopoeia standards where it sees fit, indicates clearly that the Administration is not so far from writing these standards at the present time.

COMPLETE refusal on the part of the Revision Committee to perform its function of interim revision, coupled with the attitude of the Administration as expressed by Dr. Durrett must eventually lead to preparation of the entire Pharmacopoeia by the Government. Professional pharmacy can bark all it likes and continue to brand as "substandard," goods failing to meet impossible specifications, but if it refuses to perform its full duty not only to its own profession but to the medical profession and to the public as well, it will sooner or later have taken away from it the control of the standards of its profession.

New York City Drug Control A remarkable thing is the survey on the Control of the Sale of Proprietary Remedies made by Dr. Samuel M. Gordon, of Chicago, at the request of the Health Commissioner of New York City. We received this piece of work by the grace of Edward Fisher Brown, Special Deputy Commissioner of Health of New York City.

In case the uninitiated does not know just who Dr. Gordon may be and why he should be invited by the Health Commissioner to make such a survey, let us hasten to explain that he is secretary of the recently formed Council on Dental Therapeutics of the American Dental Association. This Council is much concerned at the present time in finding prominent tooth pastes that feel the indorsement of the council necessary to keep their sales volumes from falling. Thus far we have only observed one widely known tooth paste advertising this endorsement with the caption, "It stands alone." We wonder whether the Council is as pleased as the advertiser to have this product the only outstanding one accepted.

But quite aside from Dr. Gordon's other activities are his recommendations as regards proprietary medicines, such as requiring a statement of the qualitive and quantitative composition of the article to be plainly stated on the label. As justification for this demand—which not even the Food and Drug Administration would dare to press to a conclusion—the Doctor states that protection would be afforded the proprietor by the U. S. patent laws and the Council on Pharmacy and Chemistry of the A. M. A. The latter body, as every drug manufacturer knows, is engaged principally in seeing how it can prevent manufacturers from deriving profits from drug specialties.

There are many points in the proposed plan that require close study by the drug manufacturers of the entire country. Dr. Gordon has quite a few words to say about advertising although he should realize that escape from the Federal Trade Commission or any other form of federal advertising control which may succeed the present one, is practically impossible. For one copy of a New York newspaper to be sold in the adjacent states of New Jersey or Connecticut immediately brings the advertiser and the publisher under Federal jurisdiction.

We do not believe that Dr. Gordon has approached the problem in an intelligent manner if this report is the best he could do.

Status Quo It is interesting to note that organized labor is now friendly to price maintenance legislation although formerly it was opposed due to its contention that it would be exploited in its purchasing by the manufacturers. Now, realizing that a profit is essential to employment of labor, it thinks that price maintenance would be a good thing.

Organized labor is no different than many other groups that look at a subject through incorrectly focused eyes seeing only a part of the picture. They are apt to follow the ideas of the last one who was able to present his argument in such a strong, sound manner that they were convinced. Perhaps if someone now told labor in a convincing manner that price maintenance would restrict the number of any one type of article that the public could purchase, and that uncontrolled prices really increase consumption, labor would change its mind.

And so it goes. Many groups of people clamor for legislation because they hear one argument in its favor never taking the trouble to hear the other side. But when there are two arguments for and against legislation both of equal merit and both quite as logical, our reasoning tells us to maintain *statua quo*.

• • •

Antiseptic Merit While we are publishing in this issue a paper giving a modern thought on the determination of the value of antiseptics, we offer no thought as to the merits of the conclusions drawn in the paper. While the Journal of the A.M.A. in a later issue quoting this paper launched into a bitter attack against those antiseptics not accepted by the Council on Pharmacy and Chemistry, we can see no justification for such an immediate generally inclusive statement.

Further work will have to be done and definitely proven results will have to be obtained before anyone is justified in contending that any of the antiseptics now on the market are not just as good as those which have seen fit to follow the dictates of the council and thereby receive its approval.

It is always well for manufacturers generally to bear in mind the fact that there are other requirements for council acceptance other than the efficacy or merit of the product in question. Quite often the manufacturer considers his product of greater value to himself without acceptance than with it and the product can not be condemned for this reason alone.

When Will They Be Stopped? If the drug trade, from top to bottom, continues to remain indifferent to the interpretation and enforcement of the Food and Drug Act after the manner of Campbell et al, a steadily decreasing sale of drugs can surely be anticipated. Also the opportunities long available in the field of drug manufacturing through the development of specialties will gradually diminish until the drug manufacturing industry will consist of a large number of manufacturers all making the same products.

There is nothing that will more quickly destroy the spirit long dominating the industry than government seizures following a sudden decision that although a product may be used by physicians for the diseases mentioned, it is not right that the public should be told these things. Although the Administration has often stated that warning letters always preceed seizures, there is good reason to believe that this is not the fact. Multiple seizures are being used today in a manner that creates the opinion that the Government will waste no time or take no trouble in bringing the smaller manufacturers to terms.

And quite aside from the injustice of the Administration's interpretation of the law is the change of attitude by administration officials depending on the answer to their question as to whether or not the defendant intends to contest the case in court. We have never yet witnessed the Government laying all its cards on the table, and even if it did, what else has it to reveal than sound scientific facts and law interpretation which the Government should be certain no one can successfully dispute?

The whole system of enforcement of the Food and Drug Act is an attempt to justify the broad application of a principle that will fit some few cases. It is an attempt to belittle everything done by drug manufacturers merely because some manufacturers let their desire for sales volume lead them into exaggerated statements which the Administration gleefully labels "FRAUD."

• • •

It has been found by one investigator that the rat is not always reliable as a measure of vitamin D. In this instance, an oil exhibiting anti-rachitic effects upon rats failed to duplicate the effect when used on chickens. We also hear that one expert now contends that products for human consumption should be standardized on babies.

Uncertain Markets Although raw material markets are generally considered to be in a deplorable state, it is interesting to note how occasionally one market that is thought to be beyond redemption will suddenly stage a rather sharp recovery. During the past month Bourbon vanilla beans have shown strength that caused wonderment to many who had followed the situation. Although factors interested in the bullish aspect of the market never failed to indicate what a comparatively small sum of money could do in the vanilla market, generally a recovery of prices was not anticipated and various proposed schemes were broadcast in an effort to stimulate buying.

Nevertheless, the amount of beans not in strong hands proved surprisingly small and the gradual movement of the weakly held stocks into firmer quarters brought the result desired by traders generally. Higher prices mean more active interest on the part of the consumers, and a reassurance that the coming crop will not be abandoned in such a large percentage.

The occurrence in vanilla beans only serves to illustrate what may occur in any number of products that consumers are too apt to egard as beyond hope of recovery. Other products that are admittedly over-supplied are apt to pass into strong hands without any warning. In such cases, those who have delayed covering their requirements will be forced to pay for their delay. It pays to buy when things are cheap and when nobody wants them. Even though the price may sag slightly, eventually the purchase will return a profit.

• • •

An Indian Gift Indictment of the Sugar Institute by the Federal Trade Commission has called forth a flood of comment based on the fact that this institute and its policies had previously been blessed and approved by the commission.

Under President Coolidge, an enlightened policy of fostering a code of ethics for an interested industry was initiated by the Federal Trade Commission, and Assistant Attorney General William J. Donovan put his department on record with left-handed approval of these codes. However, Mr. Hoover, soon after his inauguration, reversed this policy in his warning to the oil industry.

Manufacturers who have hoped that a code of ethics would solve some of the harassing problems of industry, now see the co-operation of the Federal Government in helping to formulate and enforce a code of ethics as an Indian gift from Washington.

Blonde or Psyllium Seed?

A repetition this year of high prices on psyllium seed has brought into the limelight the so-called blonde seed of Indian origin. This latter seed, while not actually psyllium, is a seed of the plantago family and possesses properties similar to the black psyllium seed. As to its therapeutic value, there are those who claim superior merit for both the black and the blonde.

The main advantage of the blonde seed is that it is available in almost unlimited quantities. India has two crops a year and there seems to be more available than this country can consume. In fact those interested in the blonde seed have now taken contracts for close to the total imports of the black seed a year ago. They confidently expect to pass the black seed in quantity of imports in another year or two.

While those interested in the black seed might feel that the invasion by the blonde seed is unwarranted, the lack of price stability to this market made some such development certain. The drug trade can not afford to pay up to 75 cents per pound for a seed that is selling over the counter at any price from 75 cents up to $1.00. If there is not sufficient margin of profit left for merchandisers of the seed to operate, then a substitute seed or lessened activity must result. In this case the result is obviously a substitute seed.

• • •

{ Ten Years Ago }

From our pages, April, 1921

The Heyden Chemical Co. reports for 1920 net income of $240,964 after expenses and depreciation, This amount was equal to 48 cents a share earned on the 500,000 shares of capital stock of no par value outstanding.

The U. S. Supreme Court has decided that state laws dealing with illegal traffic in drugs are enforceable even in conflict with the Federal Narcotic Act.

The Ciba Co., Cedar and Washington sts., New York, has opened a branch office in Providence.

The Federal Trade Commission is receiving many complaints of unfair competition by reason of guarantees against price declines, although the practice is less common owing to the continuous fall in prices recently.

Compagnie, Parento of Chicago, dealers in essential oils and aromatic chemicals, will open a branch sales office in New York under the management of F. H. Doolittle, about May 15.

• • • New and Non-Official • • •

• • •

Brains Is What Does It

The Halitosine Co. has been formed in St. Louis. Strange as it may seem the company is introducing a new product, "Halitosine," which, believe it or not, is an oral antiseptic.

• • •

"A Rose By Any Other Name"

A certain crude drug dealer lists a certain product in his catalog at 50 cents per pound. The same product is listed under its synonym at 45 cents per pound. That seems to prove that there's something in a name after all.

• • •

The Business Index (Modernized)

Now that it has been observed that women wear long skirts prior to a depression and short skirts before a boom, we trust that all the Romeos of the trade will see what they can do to get their lady friends back to wearing knee-length skirts.

• • •

"Millions for Defense"

Some time ago one of our contemporaries decided to discontinue trade paper subscriptions on the theory that he had nothing to learn from other publishers. Some time elapsed and our morning's mail disclosed a renewal of his subscription to DRUG MARKETS. Recently a second subscription came in from his office.

We promise our advertisers that we will only let this go so far before putting our foot down. We will *not* permit him to secure a controlling interest in our circulation.

• • •

"Lover, Come Back to Me"

Following the birth of an illegitimate baby in a certain hospital, there were so many men visitors to that particular ward that one of the nurses suggested naming the baby "Bananas," because it belonged to the bunch.

• • •

Dedicated to the WISE BUYER

A certain WISE BUYER in the ink industry could not be convinced that modern production methods produced ink bottles as good as those made in the good old-fashioned way. One of the characteristics of the bottle made in the aforesaid way was plenty of dirt and soot intermingled with the glass.

A certain wise salesman took his order after none of his competitors could get it because they stated their inability to produce in any but the modern way. The same salesman asked a somewhat higher price but the buyer was willing to pay the premium to get his old-fashioned bottles. So that now, when that glass company has a run of ink bottles to make on their very modern equipment, they make most of them in the generally accepted way but attach a blower to blow soot and dirt into those ordered by the WISE BUYER. Moral—All is not gold that glistens and wisdom is the price some pay for dirty bottles.

• • •

Deadlier Than the Male

Male mosquitos are strictly vegetarian in their diet. Lack of vitamins is probably what makes the female so nasty.

Have We A Government Pharmacopoeia?

Although Drug Control claims it has no authority to make standards for any drug products, it states that it will correct Pharmacopoeia standards which are incorrect or which are too high in requirements to be met. By thus assuming responsibility for altering incorrect standards, Drug Control must also accept responsibility for leaving other standards unchanged. Therefore, Drug Control is responsible for the entire Pharmacopoeia. Read Dr. Durrett's opinions.

"We know more about the Pharmacopoeia than anybody else," says Dr. Durrett

THE controversy over ambiguity in the U. S. P. has attracted attention in the Department of Agriculture as well as in various branches of the drug trade and of pharmacy. The Department view seems to be that pharmacopoeial requirements are too strict to be practical in some instances. This has been made clear by Dr. J. J. Durrett, Chief of Drug Control, who mentions particularly nux vomica and gum benzoin. At the same time Dr. Durrett points out that there have been errors in the U. S. P. to which the Department has called attention. For reasons of policy departmental officials do not care to take sides in a controversy over the Pharmacopoeia.

After discussing the situation in some detail, Dr. Durrett, in effect, agreed with Drug Markets that a solution of the problem of clearing up ambiguities in the Pharmacopoeia may be found in the provision of the Pharmacopoeia for interim revision.

"The interim revision provision is all right, if it is used," said the Chief of Drug Control. "But the trouble is that there is always resistance to its use."

"We are going to read the U. S. P. according to the best of our understanding, and to apply it as we understand it," said Dr. Durrett. "If we are wrong the courts can say that we are wrong. We are not taking sides in connection with any row about what the Pharmacopoeia means. We are going to enforce it as we understand it. We will interpret it to the best of our ability, honestly, fairly and without prejudice."

Department officials admit that Drug Markets is correct in taking the position that the Department has no right to prevent the importation of products that do not meet U. S. P. specifications, simply because they are mentioned in the Pharmacopoeia.

Various products mentioned in U. S. P. are used as chemicals or for industrial purposes. With such uses the Department has nothing to do under the food and drugs law. Therefore, it does not require that products intended for such uses shall meet U. S. P. standards. Epsom salt is a case in point. But Food and Drug Administration officials won't go so far as to state that they pay no attention to epsom salt in interstate or foreign commerce. They point out that a lot of work is performed in examining importations and shipments of many drugs and drug materials and in-

timate that possibly some of it may be performed with reference to epsom salt.

"Is it true, as has been suggested," Dr. Durrett was asked, "that the Department could establish a standard for any drug that is to be used internally ?"

"No, that is not correct," he replied. "We do not set up drug standards. This is true whether the drugs concerned be intended for internal or external use. We can not establish standards."

With reference to proprietary preparations, the Chief of Drug Control stated that neither the Department nor the law requires the manufacturers of such preparations to state what their formulas are. But if the manufacturers do undertake to say what is in their products, they should tell the truth. And if the manufacturer mentions a drug or drugs that are in his preparation those drugs must comply with U. S. P. requirements, as a general thing. That there may be exceptions to this rule is indicated below.

"If a proprietary drug manufacturer uses senna in his preparation and says so on the label then that ingredient must conform with standard requirements," said Dr. Durrett. "If he uses senna and announces the fact, then it is a drug used for drug purposes and should comply with specifications.

"If, however, senna were used in a shoe polish or for tannery purposes, then that senna is not a drug and need not comply with U. S. P. standards.

"If a proprietary manufacturer wants to use stems, or trash, instead of leaves, as an alleged drug ingredient in his drug preparations, he may do so, provided he does not mention the alleged drug used. But if he mentions the drug it must be standard."

Attention was called to the fact that proprietary preparations are not, as a rule, mentioned as such in the Pharmacopoeia. Therefore, proprietaries need not comply with U. S. P.

Dr. Durrett indicated that U. S. P. standards are too high in some instances. "Nux vomica is pretty nearly too high," said he, "The Pharmacopoeia requirements are probably too strict. They would exclude great quantities of perfectly good nux vomica. The Pharmacopoeia has errors in it. If these errors are not corrected we are not going to say that the American people can not have the particular drugs concerned, which would be excluded as a result of such errors. The gum benzoin standard in U. S. P. is too high."

Hyoscyamus is another drug on which enforcement officials intimated there may be trouble in meeting U. S. P. requirements. An alkaloid drug has also been referred to in this connection, but not officially by name. Certain volatile oil requirements of the Pharmacopoeia are declared to have been wrong until corrected recently.

As to the latter, officials say that there was a wrong solution specified in one of the tests, which would not work. This is the only interim change in the Pharmacopoeia which Food and Drug Administration officials recalled having been made which serves to illustrate Dr. Durrett's point that interim revision is "resisted." With reference to volatile oils, Dr. Durrett furnished the following details.

"In the case of oil caraway, an error in the U. S. P. attracted our attention. We called it to the attention of the Revision Committee, and a change was recently made. It concerned the method of determining the quality of oil caraway. The general principles set out in the Pharmacopoeia for oil caraway apply to the volatile oils of cinnamon and spearmint.

"Regardless of what preparation is involved, the Pharmacopoeial organization ought to make interim changes where necessary for improving standards and correcting methods of assay."

On the general proposition of revising and interpreting the Pharmacopoeia, Dr. Durrett had the following views to submit:

"The U. S. P. convention has the right to write a book, and we are going to follow that book, but we will interpret it to the best of our ability.

"If they put errors into it, whether by design, intention, accident, or otherwise, we will try to correct it.

"We know more about the Pharmacopoeia than anybody else. The Department has many men working with the Pharmacopoeial authorities. We will give the latter the benefit of all the information we have. We don't quarrel with them about anything, but we do expect them to take advantage of whatever information about methods and drugs that we may be able to supply them with. We have been pointing out errors in the Pharmacopoeia from day to day which we hope will be corrected."

Some drug trade representatives think Dr. Durrett goes too far in his application of the Pharmacopoeia standards, with reference to the ingredients entering proprietary preparations. According to the particular drug trade view referred to, if a proprietary manufacturer says he uses senna, for example, in his preparation, it may be any kind of senna, just so there is some senna present. On the other hand, if the manufacturer states how much senna he uses, then that amount of senna must be present. At the same time, it is declared, proprietary manufacturers as a rule use only purest drugs. In fact, the belief is expressed that it might be difficult to find a quantity of impure or sub-standard senna, for example, on the market, even if the manufacturers wanted to use it.

According to drug trade people, except in the case of a few proprietary preparations which have become standardized and are listed in the Pharmacopoeia, each proprietary preparation practically sets up its own standard. At the same time proprietaries must

(Continued on page 382)

Permissible Tonics

Drug Control tells us how label statements for this important group must be treated.

MEDICAL science recognizes five principal drugs having tonic qualities or properties. These are iron, quinine, strychnine, arsenic and manganese. At least this is the view of the Food and Drug Administration, which seems to be accepted by representatives of the drug trade. When it comes to labeling tonics and tonic preparations, the Administration has held that, of course, they should be truthfully labeled, and that the labeled dosage shall represent a U. S. P. dose of one of the above mentioned principal ingredients.

Above is the gist of the Department of Agriculture's policy as regards tonic labels. There has been no specific drive or project on tonics, but they have been handled individually. Discussing the labeling of tonics, with Drug Markets, Dr. J. J. Durrett, Chief of Drug Control, said recently:

"If you have a preparation containing iron and that ingredient is present in sufficient quantity to give you a dose of iron, when taken as directed on the label, we have no objection to saying that is an 'iron tonic.'

"The same principle holds true as to labeling any preparation, respectively, containing another tonic medicine, such as strychnine, arsenic, quinine, or manganese.

"If a preparation contains three or four of these ingredients in adequate amounts for tonic purposes, we don't insist on naming on the label, all these ingredients. In such a case the Food and Durg Administration will let the manufacturer say on his label that the product is a 'tonic preparation.'

"However, where there is only one ingredient present in a preparation that has a tonic effect, we feel that accuracy in labeling demands that the kind of tonic ingredient present should be pointed out."

"Is the U. S. P. dosage always the standard for labeled dosage on tonic preparations ?" Dr. Durrett was asked.

"The labeled dosage should compare favorably with the U. S. P. dosage," was his reply. "Of course the dosage of a tonic preparation varies with different persons. What might be a tonic dose of strychnine for you, for example, might not be enough for me, or it might be too much for somebody else. The U. S. P. dosage is based on the dosage of the average person. The label should show what is the average dose for the average person.

"When it comes to strychnine, for example, the only proper method of administering such a tonic is under the advice of a physician," Dr. Durrett continued. "The tonic effect of strychnine is gotten by beginning with a small dose, later increasing the dosage for a time, then decreasing for a time, and then again increasing it, and so on. It may not be practicable to place instructions to this effect on a tonic label."

As to the method of administering tonics generally, that may be indicated on the label, Dr. Durrett said:

"It is pretty well established in medicine that tonic action results from repeated doses of a preparation, and not from single doses. Preparations that are labeled for tonic use ought to take into consideration recognized methods of administration of tonics, as well as recognized doses."

Generally speaking, a tonic is held to have a rather prolonged effect on the human system, if it has been properly taken. On the other hand, a stimulant acts for a shorter period, the Department of Agriculture drug experts believe.

As a general proposition, it is understood, the Food and Drug Administration does not view with favor the coupling of the names of diseases and organs of the body with the names of tonic preparations, but this is not an invariable rule. Drug trade people were formerly under the impression that the Administration would frown upon naming a preparation a "heart tonic." However, when Dr. Durrett was asked about this by Drug Markets, he replied:

"If a preparation contains a definitely recognized heart tonic ingredient in proper quantity we have no objection to the manufacturer saying so on his label, provided the dosage recommended is proper."

In reply to a question, the Chief of Drug Control stated that digitalis is recognized as a heart tonic. He did not specify any other class of "organ" tonics that

could be labeled. Asked about so-called nerve tonics, Dr. Durrett declared:

"We know of no preparation good for a nerve tonic." He likewise turned "thumbs down" on alleged "liver tonics."

In the opinion of Food and Drug Administration officials, the term "tonic" has been abused in the past. For example, Dr. Durrett cited certain purgative preparations that had been labeled "tonics."

"Certain few manufacturers have been most anxious to call purgative preparations 'tonic,'" he said, "when as a matter of fact the preparations in question did not have tonic properties. Their principal quality was purgative. Such preparations can not be called tonics."

Tonic or Stimulant?

Dr. Durrett was asked to explain the difference between a tonic and a stimulant, from the standpoint of the Food and Drug Administration, with reference to the labeling of drug preparations. Trade representatives recalled that the late Dr. P. M. Lowell, when senior medical officer of Drug Control, held that a preparation containing a small quantity of tonic ingredients and with alcohol might properly be labeled a "stimulant," or a "stomachic." That interpretation, by the way, did not meet with universal approval in trade circles, it is understood.

"If a small quantity of a tonic ingredient has a stimulating effect," said Dr. Durrett, "then the label may say so but in that connection it must specify the dosage that will produce stimulation. If a larger quantity of the same ingredient has a tonic effect, then that dosage may be specified together with the statement that it is tonic.

"Bitter tonics, as a rule, will produce a stimulation of the appetite. An alcoholic stimulant might have the same effect. It has an additional effect that stimulates without any lasting influence upon the tissues stimulated. When such a stimulant medicine has passed through the system and is exhausted, the response of the tissues is somewhat to let down.

"A tonic medicine, on the other hand, is one that generally builds up its tonic effect over a more or less prolonged administration and has a very gradual decline in its action. It is not always possible to make clear the difference between tonic and stimulant medicines. A single dose of a tonic medicine might act as a stimulant."

As to "stomachics," Dr. Durrett remarked that if enough strychnine were given merely to produce a bitter taste, that has the effect of stimulating the appetite, and the word "stomachic" may be used on the label of a preparation containing this ingredient, provided appropriate dosage is recommended on the label in that connection.

Getting back to strychnine again, for a moment, some drug authorities hold that if the standard U.S.P dosage of one-fortieth of a grain of this drug were taken, three times a day, over a long period, it would probably cause discomfort if not trouble to the patient. Dr. Durrett's answer to this point may be summed up as follows:

If it should develop that too much strychnine is being taken by a patient the dose should be reduced. It might be increased later on again to get a proper tonic effect.

Department of Agriculture scientists are interested in the recent report that Dr. McCollum, of Johns Hopkins, has concluded from experiments there, that presence of the tonic ingredient manganese in the diet accounts for what is considered a normal manifestation of mother love, at least in the case of female rats. The latter, deprived of all manganese, are reported to have lost interest in their offspring. The departmental scientific comment is that while manganese might be responsible for mother love in rats, it might not be responsible for mother love in the case of humans. However, it is laughingly suggested that the at McCollum finding might possibly be considered a talking point in behalf of manganese tonics.

Food and Drug Administration officials view with disfavor labeled or advertising statements, with reference to tonics, such as that "you need iron in your system." This is deceptive, in their opinion, because an average varied diet contains iron. Officials likewise do not look with favor upon such expressions as "exhilirating and vitalizing," as applied to alleged tonic preparations.

Preventing "Fraud"

With regard to tonics, as all other classes of drug preparations, Dr. Durrett says, the office of Drug Control is guided by the principle that the food and drugs law was enacted to prevent the practice of fraud and deception upon the consuming public. Preponderance of results as well as specific action, when drugs are administered, largely control the Administration, he says:

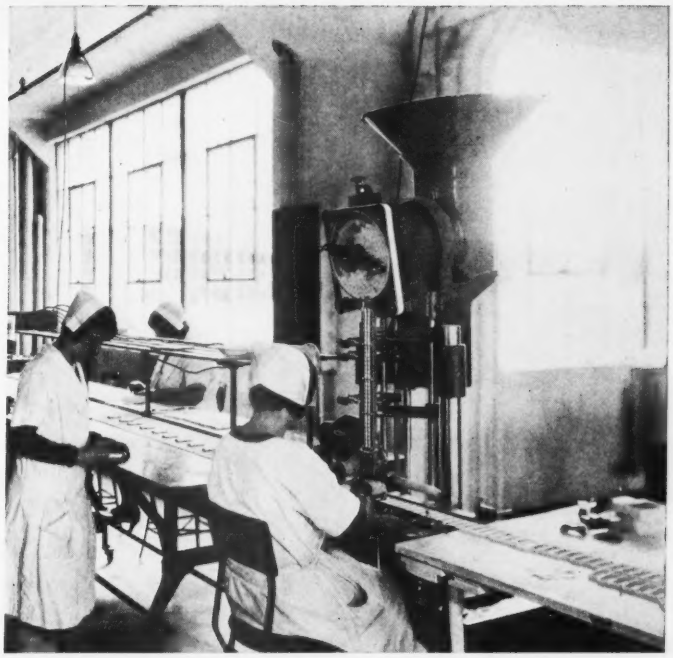
"One case doesn't make it so," remarked Dr. Durrett. "The tendency in plant and animal tissue is to keep itself in health, functioning normally, and if we give it half a chance, by having the outside, daily influences that are brought to bear on us properly regulated it will pretty nearly accomplish that.

"It is rather to be unexpected that you can reach out and get some accidental or occasional thing foreign to the body and take it in the shape of doses, and materially change the state of the body for the better.

"However, there are drugs that will do certain definite, specific, and exact things when they are taken into the body, and when those things are desired and wanted by the individual it is perfectly legitimate, and we are happy to have him receive those things, with statements of such activity clearly and plainly and conspicuously set forth on the label.

"The manufacturer who years ago recommended his tonics or other medicines for various diseases and

(Continued on page 382)



Allonal being counted and filled automatically

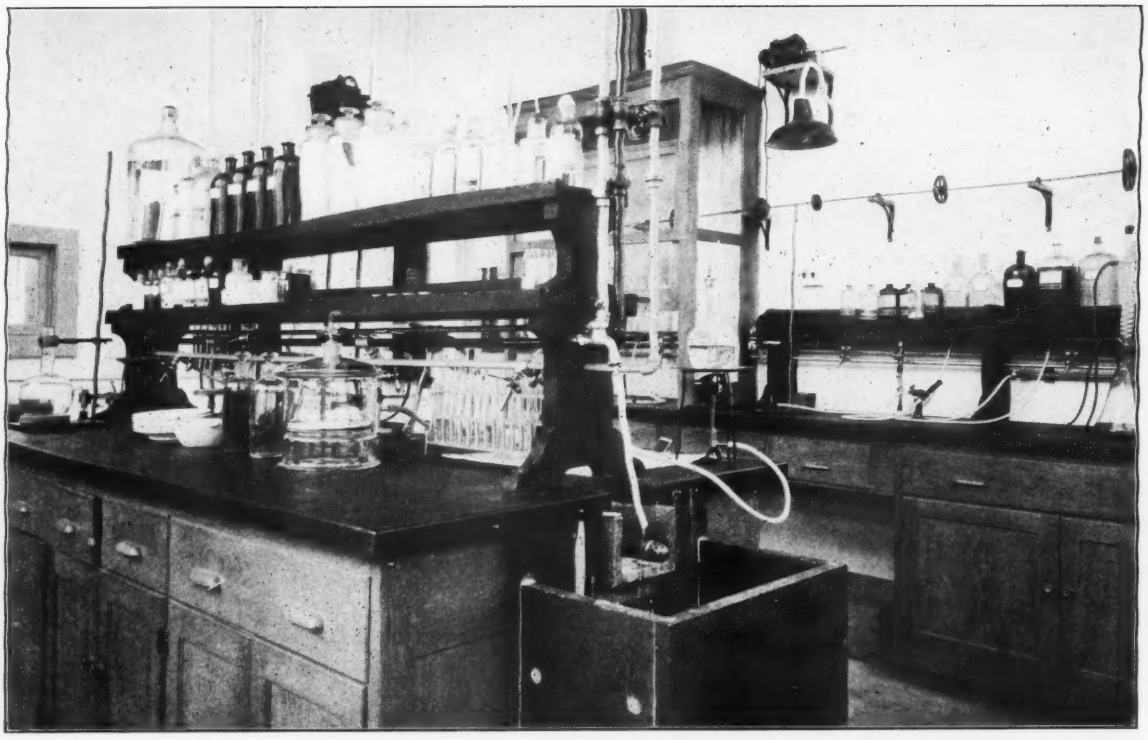
Tablets and Liquids

Modern production methods in production of ethical products are revealed in the plant of Hoffmann-LaRoche.

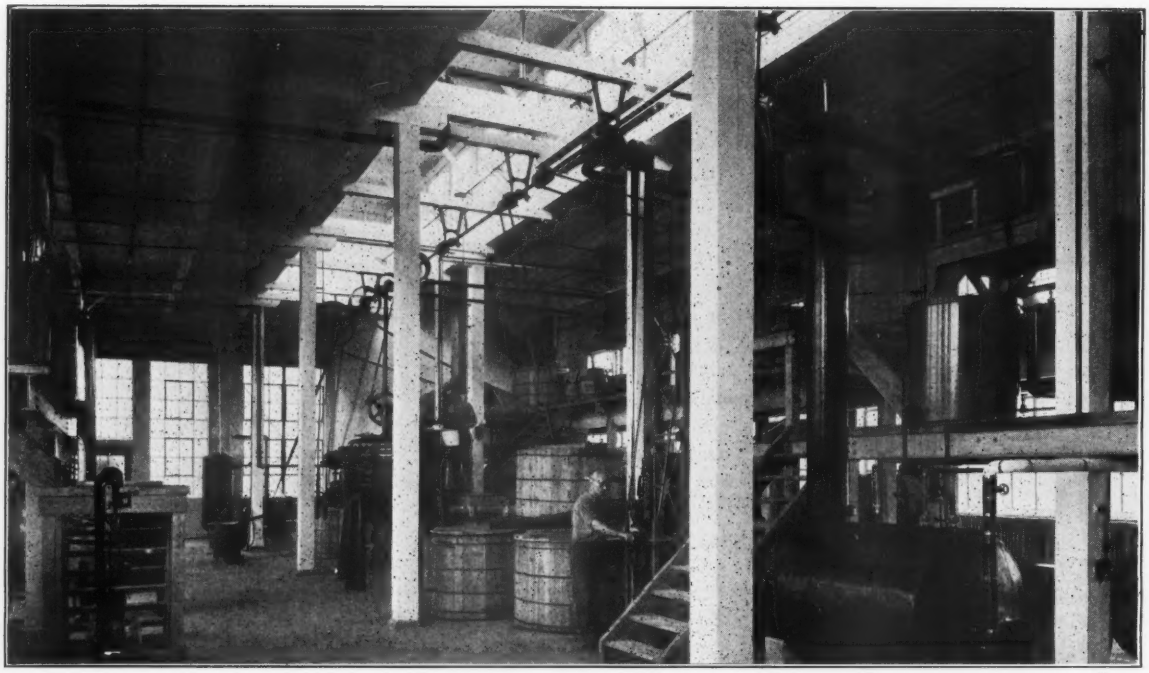
THE Hoffmann-LaRoche plant at Nutley, New Jersey, presents an excellent combination of industrial efficiency and pleasant working conditions for employees. There are no cubby holes or light obstructing partitions anywhere in the building. Where it has been necessary to use partitions, they are constructed largely of glass, so as not to impede the passage of light. Throughout the entire building the floors are sized and painted with a lustrous gray paint, which makes it possible to keep them immaculately clean.

Finishing materials are stored on an upper floor of the building, which is connected with the packaging room by means of roller conveyors, so that finishing materials can be handled by gravity. In general, it is a multi-floor layout, that is, the upper floors are used for warehousing and the manufacturing processes so designed that the flow of products is downward through successive operations to the finished stock room on the lower floors.

The products of the Company fall into two classes, liquids and tablets, of which Allonal is one of the most famous. Nothing is done by hand that can practicably be produced on automatic equipment. The raw materials for syrup of thiocol are stored on one of the upper floors adjacent to the compounding department. It is prepared in glass lined tanks which are connected to the filling machine on the floor



Analytical, pharmacological and physiological laboratories are located on the roof



Manufacture of Allonal occupies this part of the plant

below to permit gravity flow. Similarly, a roller conveyor connects the warehouse with the washing machine at the head of the production line, so that empty containers can be handled by gravity also. The empty bottles are removed from their shipping cases and fed directly to a rotary washer. After adequate washing they are then fed to an automatic rotary vacuum filler which is the next machine in the line. The filled bottles pass through an automatic, six head rotary capper, and, after capping, are delivered to a battery of semi-automatic labeling machines When they are labeled, they pass in a straight line to the assembly table where the bottles, together with literature are packed into folding cartons and then into corrugated. The packed syrup of thiocol is then delivered to the shipping department.

The manufacture of Allonal and other tablet products is carried out in the most advanced types of equipment. Some of them are made from drug extracts that must be concentrated after percolation. In order to avoid the dangers that beset percolation through improper packing of the percolator, they are charged loosely and the menstrum rapidly circulated through the crude. In effect, this is a maceration process, although carried out in percolators; the advantage of continuous percolation being that the drug is thoroughly exhausted of all its soluble constituents. The percolates are then evaporated in a vacuum still and some of them are concentrated to solidity in evaporating pans provided with hoods to prevent fumes from escaping into the laboratory. The tablet mass is mixed and then granulated in an oscillating granulator. The granules are dried in shelf driers and delivered to automatic rotary tablet presses. One of the distinctive achievements of the tablet compounding is that of producing uncoated tablets of an unusually high luster, a feature which facilitates the operation of tablet filling machinery and makes the tablets easier to take.

The finished tablets are then delivered to the tablet packaging department, to which has been made a recent addition of one of the most modern tablet counting and filling machines. This new addition represents a departure from all other types; it will fill coated and uncoated tablets of any shape or size. The tablets are fed into a hopper, from which they pass through a small opening into a rotating drum about eight inches in diameter and rotating at an angle of about thirty degrees. The function of this drum is to place the tablets on edge in a slot that leads to the filling throats. Since only a few tablets are in the drum at one time, jamming, breakage and chipping are prevented. The front of the drum is provided with a glass plate through which the action of the tablets in passing from the outlet of the feed hopper, or reservoir, to the hopper leading to the filling throats can be observed.

The slot into which the tablets fall on their edges can be regulated for tablets of different thicknesses by simply adjusting the glass plate.

From the hopper the tablets pass downward through the filling throats to a magazine designed to contain the exact number of tablets to be packed into a given sized box. The operator places the box in position beneath the magazine and presses a lever which causes the magazine to open. A vacuum holder, designed to form the inside of the magazine, comes forward and automatically assumes a horizontal position and drops the contents of the magazine directly into the box in the exact position designed.

By changing the throats and adjusting the filling table, this machine can be made to pack tablets of any size or shape, whether coated or uncoated, into any type of container. Its construction is simple; it is easy to operate and to set up for different tablets and containers.

One of the unusual features of the Hoffmann-LaRoche plant is the exceptional provision made for the comfort of workers. They have not been content with providing merely a sanitary environment but have gone further and provided an attractive one as well. Each worker is given a large locker in a spacious locker room and is provided with a neat, white uniform. The wash rooms are very large and airy and first aid facilities exceptionally complete. A cafeteria provides a well prepared lunch at cost.

The Company does not believe in piece work systems, having demonstrated that adequate compensation and excellent working conditions are in the long run the best incentives, and their remarkable production figures attest the soundness of this policy.

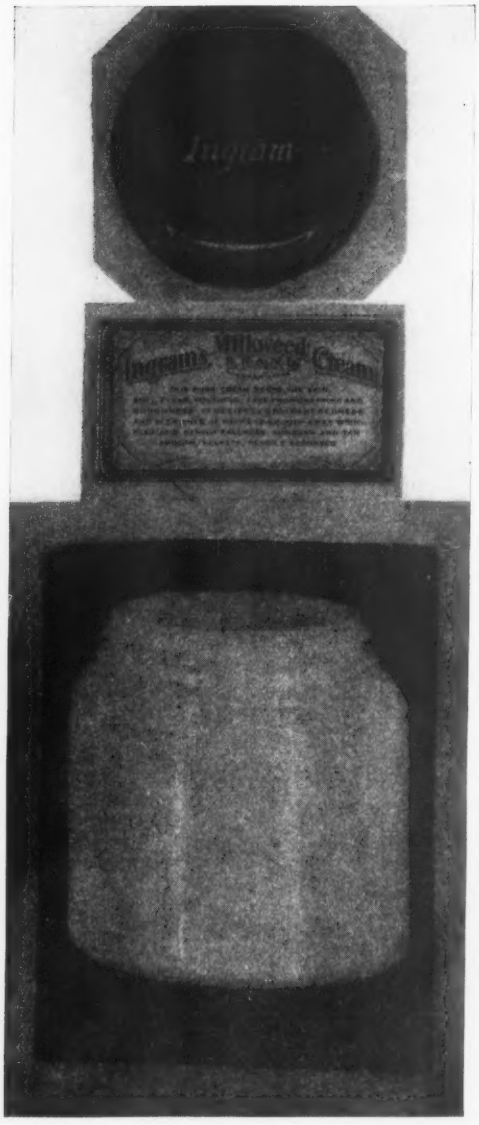
Price Maintenance Study

At a dinner-meeting at the Lotos Club, March 18, the special committee established by the New York Board of Trade to study retail pricing approved of the suggestion that Prof. Edwin A. R Seligman, the internationally known economist of Columbia University, and his colleague, Dr. Robert A. Love, of the College of the City of New York, be asked to investigate the economics of price-cutting and price-maintenance.

Following the dinner, Mr. Plaut, president of Lehn & Fink Inc., stated that, while he had been a warm advocate of the Capper-Kelly bill in its original form, he wanted it understood that his attitude, and the attitude of the committee, toward the price-cutting versus price-maintenance controversy was entirely unbiased and open-minded; that the committee was earnestly endeavoring to add something to national knowledge of the subject, which might work toward a more satisfactory solution of the problem.

Professor Seligman, one of the foremost economic scholars in the world today and a sincere advocate of liason between the science of economics and practical business, spoke at length on the various aspects of the problem as he views them after his many years' study. He traced the development of the age-old controversy between consumer and producer down to modern times when, he declared, there is a much greater tendency to cooperate than ever before.

After having been requested to make an economic study of the situation Professor Seligman indicated his willingness to help, with the understanding that the research be entirely unbiased and that he be permitted to have a completely free field for his operations. Mr. Plaut assured him on behalf of the committee that this was completely in accord with the purposes which led to the establishment of the committee.



A package change was necessary to bring the appearance of Ingram's Milkweed Cream into step with the new personality that has built around the product in a rather ingenious fashion.

At the right is the old theatrical size of Ingram's Milkweed Cream which has been converted to the regular large size package shown above

New Package for New Personality

TO MODERNIZE the dress of an old product is not enough to send it away to wider consumer acceptance and increasing sales. For a new package, while it will do much to bring a product up to date and to put it in stride with modern merchandising, cannot carry the entire selling burden. Along with a restyling of the old and accepted package must go a new personality, a personality which is not hard to build up if the product is right.

The best way to show how this packaging problem can be handled is to illustrate with an actual case, and the experiences of the Bristol-Myers Company in putting a modern personality into Ingram's Milkweed Cream, which first went on the market in the 1880's and remained unchanged as to dress for forty years or more, will serve as an unusually good example.

According to Lee H. Bristol, vice president in charge of the company's advertising and president of the Association of National Advertisers, Milkweed Cream had the typical background of an old and successful product. Introduced to the consumer in a pioneer merchandising age, its exploitation was simple and inexpensive. Geared to the times, promotion consisted largely in letting the package carry the sales message, and with this slight effort behind it the product attained a conspicuous popular success. In view of this success and in view of the fact that all creams of the period had few touches of vogue and so were not affected by the fickleness of fashion, very little sales reaction could be expected from a package change.

Because of these conditions, a testimonial from Sarah Bernhardt, signed at the Hoffman House in the 1890's, continued to be the package's biggest sales message right up to the time the Bristol-Myers Company bought Milkweed Cream from the F. F. Ingram Company in October of 1928. This may not be a record for continuous use of package and testimonial, but it is very close.

"Everything about the product was *dated*," says Mr. Bristol in explaining the situation when he took hold of this established item. "Not only was the testimonial actually dated, but the circular explaining the cream's uses was *dated*, and every evidence indicated that Milkweed Cream sales, which still were important as to volume, had tended to go more and more to the older age brackets and to less urbane consumers. As these groups disintegrate faster than any product alone can influence new users, our problem was to carry the cream aggressively to the young and modern-thinking market.

"Since the World War, creams have taken on the style and personality of their manufacturer or their entire line. Similar style and personality could be added, we felt sure, to Ingram's cream. Style could be built up through modern packaging. That was not so difficult. Personality could be developed, we also believed, for the reason that there was in this cream a dormant personality based on its therapeutic qualities. These qualities could be featured—which had not previously been done—and we could play up this item as a 'cleansing cream plus therapeutic content' or, more indirectly, as we now advertise, 'only a healthy skin can stay young.'"

Within six weeks of taking over the product, the company started redressing the product. Three steps were contemplated. The first was to redesign the package in a way to make it modern while keeping the memory value of the old container. The second was to build up an authority behind the cream, to create a personality, an expert name, which would be synonomous for the product. Third, eventually to have this name dominant and this personality the outstanding merchandising note.

"The repackaging," says Mr. Bristol, "was not so radical as to lose the good-will of old consumers nor so modern as to put the product in direct eye-appeal competition with other creams which allow their package to carry the sales burden. The modifications we made were chiefly in the way of discarding antiquated touches. The forty-year-old testimonial of Sarah Bernhardt, for instance, was cast out and the top cover of the new carton carried instead the slogan 'only a healthy skin can stay young.' The front panel of the outer cardboard box was cleaned up, but in such a way that users of the old package could not fail to identify the new, despite the fact that our company's name went on the front panel. (Ingram's Milkweed Cream continued, in fact, to be the name of the product.) Directions were simplified, type was modernized, and several other minor shifts contributed to the general effect.

"The actual jar containers of smaller size were retained in redressed form of white bottle and black screw cap, but what had been a large theatrical-size can was revamped so that in bottle form it became our standard large size package. Previously this had been a mongrel package, started in the old days to fit the needs of the theatrical profession. By the simple process of taking it out of a can and putting it into an acceptable jar, we retained sales in the theatrical field and at the same time made this size available for general consuming markets as a unit of real sales interest to the dealer."

When this first step had been taken, the company set about the really serious task of building up a personality for this old product in new dress. Realizing that merely to repackage the product, even though the new package would retain the patrongae of old customers, would not bring new users in quantities large enough to prove worth while, and appreciating that the product's possibilities were great, the company brought Frances Ingram into the merchandising picture.

"To develop the personality of Frances Ingram," says Mr. Bristol, "was the second step to establish our authority. To advance her prestige we broadcast her

The six sides of the old carton

talks, called 'Through the Looking Glass with Frances Ingram', over a constantly increasing network of radio stations. That was a start toward gaining dominance for her personality. And during the transition period, which when we redressed the package early in 1929 and which is just ending now, we also helped change emphasis from the cream itself to the Frances Ingram personality through package inserts and booklets.

"The very first change in these was to make the original insert modern as to phraseology and type. this, in addition to cleaning up testimonials dated before 1900, was really a preliminary. The second change was to take emphasis off the name of the product and to place it on our authority. To do this, we threw out the original insert and its modification. In its stead we put an eight-page leaflet of up-to-date form. 'Frances Ingram tells how to keep your skin healthy, clear and young,' said the heading over a modernistic drawing of the Ingram mannequin, an illustrative device used in our consumer advertising. 'Starred on my famous mannequin are the six places where lines and blemlshes first come—where beauty is made or marred. Read carefully this leaflet which explains in detail how to care for each of these spots, and how to keep your skin young, fresh and altogether lovely,' said our authority. The insert then continued in this personalized vein.

"Now the latest insert change is one of greater modernization of the picture, a photograph in current

The carton being used today

style being substituted for the earlier drawing. Frances Ingram goes right ahead speaking authoritatively and suggesting Milkweed cream as the means to beauty. Thus, in this insert, we have arrived at ourthird stage—to make the personality dominant over the actual product.

"Similarly, we used booklets to take these same steps. The old product had not been promoted with a booklet, but we sent a complete story out to all consumers writing in to us as a result of national advertising or radio broadcasting. The front cover carries the photograph of a starred mannequin. 'Why Only a Healthy Skin Can Stay Young, by Frances Ingram', opens the story which inside pages continue. On the first booklet, the back cover held the Good Housekeeping seal of approval. But succeeding booklets stress the personality which has been our aim, for they picture Miss Ingram's studio in New York."

Similarly, national advertising has featured the personality behind the old product in the new package so that in 1931 it is Frances Ingram who bears the brunt of consumer advertising in half a dozen women's magazines, in half pages and full pages of illustration and text. The authority for the cream—the personality behind the product—is dominant, and the old product, now repackaged, has, as a result, merchandising power that a new package without such personality could not have.

According to Mr. Bristol, transition form stress on the product to stress on the personality behind the cream has been made slowly over the past two years partly to retain the good-will of old users who in this way are kept acquainted with the shift from old to new, and partly to allow for absorption of Ingram merchandise which had widespread distribution before the Bristol-Myers Company repackaged the cream.

"In making a change of this sort," he explains, "only time and consumer demand can adequately take care of the stocks on dealer shelves. Because of the attitude of old consumers it has been possible, while we have been making the transition I have described from emphasis on product to emphasis on personality behind the merchandise, to sell the old package and the new side by side on the same drug store counter. And now that enough time has elapsed, we can tie-in our circulars, our booklets, our national advertising and our radio talks even more closely, for we have preserved a full measure of memory value in the new package design at the same time that we emphasized that the cream Miss Ingram talks about is the one so well thought of by women for the past forty years.

"The gradual change also has enabled us to shift from the restrictive and limited sales policy of the old company, with its many price variations, to our own policy based on quantity discounts as applied to other Bristol-Myers products. For by introducing the new package through our regular and widespread outlets, we opened many doors which previously had been closed. With these outlets contacting consumers on a grander scale than before, our steps to give dominance to the Frances Ingram personality over the package have been made comparatively easy, for this new market was constantly building up during the time of the changes, and any losses among older customers were more than counterbalanced by increased sales to new.

"The net result has been an increase in business for the newly packaged cream, with a very satisfactory growth in the younger, modern market from the time that the personality behind the cream began to assert itself."

F. T. C. Attacks "Konjola" Ads

The Federal Trade Commission has issued a complaint against the Mosby Medicine Co., Cincinnati, manufacturer of Konjola, a medicine advertised as a remedy for various ailments.

The commission attacks methods used by the company in obtaining purported testimonials of users of Konjola, alleging that they are not the unbiased statements of persons who have used the preparations, as represented by the company.

Many of the statements made in the advertising matter are characterized by the commission as gross exaggerations, and it is declared that a number of ingredients contained in the preparation have no known therapeutic action and are not listed in the United States Pharmacopea.

Konjola, Inc. has filed an answer to the Federal Trade Commission's complaint against its advertising practices. The company states in March, 1930, it entered into a stipulation with the Federal Trade Commission and that both it and its predecessor have faithfully observed the provisions of the stipulation. It claims that it uses in its advertising only bona fide testimonials of actual users of the product in question, "Konjola," and that these statements are not re-edited by the company, as the Trade Commission charged.

The Mixer Medicine Co., Hastings, Mich,. has filed an answer to the Federal Trade Commission's complaint in which it was charged with misrepresentation in the sale of remedies for a number of diseases, including cancer. Charles W. Mixer, the proprietor of the company, asserts that his medicine, "Cancer and Scrofula Syrup," can dan does cure cancer, and that he has many testimonials, the voluntary statements of persons who have been cured by its use, to prove its efficacy.

The Poloris Co., Inc., New York, are planning an extensive advertising and publicity campaign for their newest product, Acadona Boil Poultice. This firm also manufacturers Poloris Dental Poultice and Jiffy Toothache Drops. Local newspapers in 52 cities in the United States and Canada will carry the Acadona advertising. This advertising campaign starting in May will run through to October.

Lee H. Bristol, vice-president and director of Bristol-Myers Co., will, as president of the Association of National Advertisers, preside at their forthcoming twenty-second semi-annual meeting which will be held at the Hotel Statler, Detroit, on April 27, 28 and 29.

Hugo Bell, vice chairman, New York Board of Trade Fair Price Committee, assistant to president, Lehn & Fink, Inc., will render a talk on the subject of The Economic Expert Studies Price Cutting.

Ungerer & Co., New York, furnished the pictures illustrating the article, "Reversal in Lime Oils," which appeared in our March issue. They were taken by George V. Branigan of that company upon a recent visit to the West Indies.

Packing Hair Toiletries

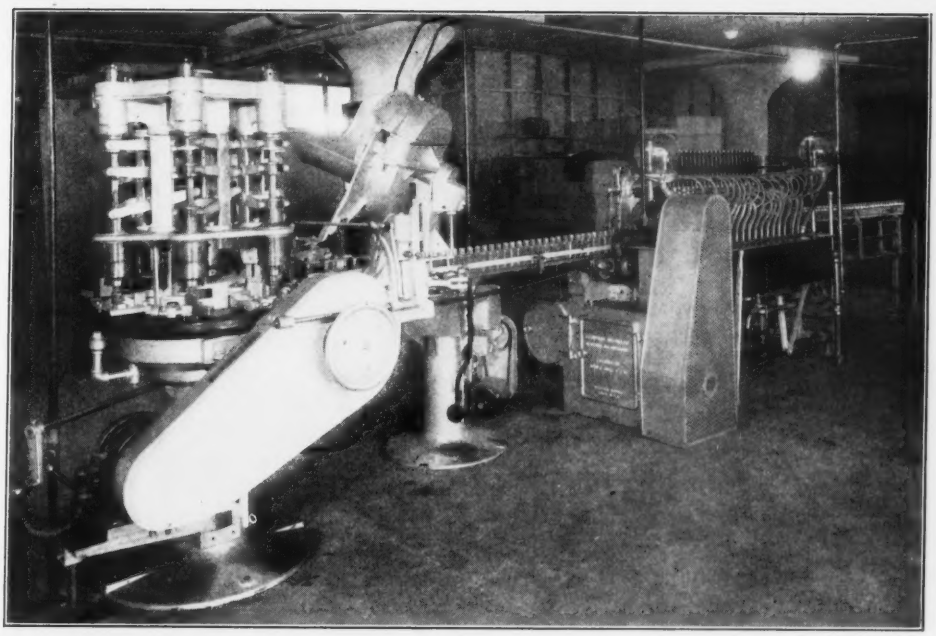
CURRAN Laboratories has very recently changed its layout from a semi-automatic line to one which is entirely automatic. The most interesting feature of this change is the fact that the capacity of the semi-automatic line was greater than that of the fully automatic one. Yet the difference in labor costs was so highly in favor of the fully automatic line as to completely nullify the savings of the higher production rate of the semi-automatic line. Here is exemplified to a high degree the modern production angle; and the very modern solution of it is a high tribute to the constructive policy of this company. Obviously, it is greatly to the credit of those in charge of production that they thus scrapped a line which was turning out their product in highly satisfactory style and it is just as obvious that many others, in a smiilar situation, would never have questioned something giving such good results.

This progressive attitude is typical of the policy of this organization which, starting with practically nothing in 1925 is a million dollar organization today. The first lot of preparations consisted of three gross of bottles filled with a filler made out of a tomato can. Last week five carloads of preparations left the plant after having been filled on a twenty head, fully automatic, vacuum filler. The business has not grown gradually; its growth has been more in the nature of a geometric progression. The sales of 1929 were double those of the previous year, and the sales of 1930 were three times as great of those of 1929.

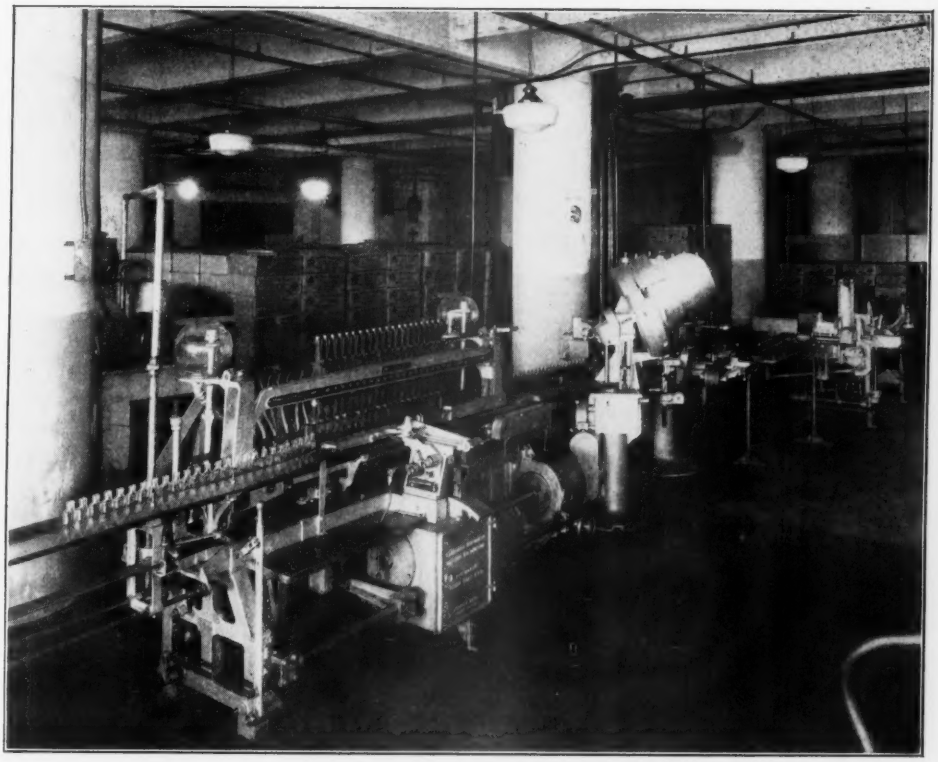
The rapidly growing business made frequent removals necessary to provide for rapid plant expansion to take care of the increased production. During the short period of the company's existence it has been forced to enlarge its quarters five times. This problem has now been satisfactorily solved through permanent location in spacious quarters which permit of future growth at a minimum of cost.

Production, at present, is routed as follows: The containers are received from the glass manufacturers packed in half-gross cartons. The self-same cartons are used for the shipment of the finished products. Several sizes of bottles are used, all of which are sealed with a screw cap. None of them are labeled—the carton and inserted circular being adequate.

Because low costs are essential to this manufacturer he has abandoned a semi-automatic line of greater capacity than the fully automatic line that has replaced it.



Filler is shown in the background at right, and capper at left



Filler, capper and cartoner follow from left to right

When the bottle cartons are opened, they are fed to a twenty spindle, fully automatic vacuum filler. After filling, they pass through a fully automatic capper, and from this into an automatic cartoning machine. This cartoning machine draws a circular from a magazine, folds it and wraps it over the bottle. The bottle, together with this insert, passes to the next station which draws a three-quarter carton from a magazine, sets it up, and inserts the bottle and its circular. The completed packages are delivered to a packing table, where an operator packs them into the same shipping cases in which the empty bottles were received. These shipping cases are then sealed and shipped.

Formerly, as has already been pointed out, the company maintained two other semi-automatic lines, but additional expansion and a study of costs resulted in additional machinery as already outlined above. The saving from fully automatic operation may clearly be seen from the contrast between the number of girls required to run the fully automatic line and those required to run the old style semi-automatic lines. The fully automatic line requires five girls and the semi-automatic line thirty.

One of the important and soundest features of this business is that provision is made for adequate research and proper chemical control. A staff is maintained to supervise the entire production process that the company may always keep up with and create developments. Money is constantly being spent to maintain the superiority of the product through the adoption of the latest and best methods. The entire layout is designed to provide the utmost efficiency, so that the filling of other equipment for other products will not interfere with the large run products packaged on the fully automatic line. In this way, loss of time through frequent stops for changing set up is avoided. One of the novel features of the layout is, of course, that since the containers require no labels, the cost of labeling machines, labels, and also their application is eliminated.

The equipment of this plant insures low costs, which in turn makes it possible to merchandise a higher quality product than would otherwise be the case. The nature of the business in which Curran Laboratories is engaged is such that good quality is necessary to get and hold business, and low costs are essential, in order to make adequate profit on the business obtained.

B. and M. Case Defaulted

WASHINGTON—The National Remedy Co. has stopped fighting, in a measure at least. Its legal contest with the Food and Drug Administration involving the question of labeling the B. & M. External Remedy has been suspended if not ended. The case, set for argument before the federal district court in Baltimore beginning March 30, was not heard.

The company concluded not to fight, it is understood. It will revise its label. The extent of the revision does not appear to be known outside the Department of Agriculture. The change may entirely meet the views of the Department, or it may be only partial. The company may elect to fight later on the basis of a changed label.

The Department, it is understood, expects notice of judgment from the court sitting in the case. The case is reported to have gone to a default decree. This would mean that the label or seizure of B. &. M. Remedy would be confirmed by the court.

At the Department all is satisfaction, apparently, surrounded by deep mystery. Officials of the Food and Drug Administration and of the Solicitor's office, which handled legal problems involved in the case, maintained strict silence.

When Dr. J. J. Durrett, Chief of Drug Control, was asked about the outcome of the case, he replied that all information about it would have to be obtained from the court in Baltimore. But Dr. Durrett bore the look of the cat that swallowed the canary.

Solicitor's assistants would say nothing pending receipt of information from Baltimore. Mr. Fisher, employed by the government as special counsel in the case, was expected in Washington, possibly for a consultation, before official announcement was made. However, there were indications that an announcement was somewhere in the works.

The B. & M. case in Baltimore had been selected by the government and by the company, it was reported, as a test case on the merits of the controversy that has long waged between the two parties. Pending determination of that case, it had been understood, the government would make no more seizures of the B. & M. product.

The reported outcome of the case, if confirmed, is hailed in government circles as a notable victory. Incidentally, the government might be free to make more seizures.

B. & M. remedy is an external application that has been claimed good for tuberculosis and a number of other serious diseases. In a previous legal contest with the government it won out in a New England case involving label claims. After that the government proceeded to seize the product in a number of other localities.

The company protested against multiple seizures and started injunction proceedings in District of Columbia Supreme Court to stop Department of Agriculture officials making such seizures.

The injunction case was decided in favor of the government by the court a year or so ago. The company thereupon appealed to the District of Columbia Court of Appeals. That appeal is pending and scheduled for hearing. Meantime the Baltimore seizure case was proceeding.

Blue Light and Amber Glass

By W. R. Lester*

Mr. Lester gives the results of his observations regarding the transparency of amber glasses in the blue, violet, and near ultra-violet region.

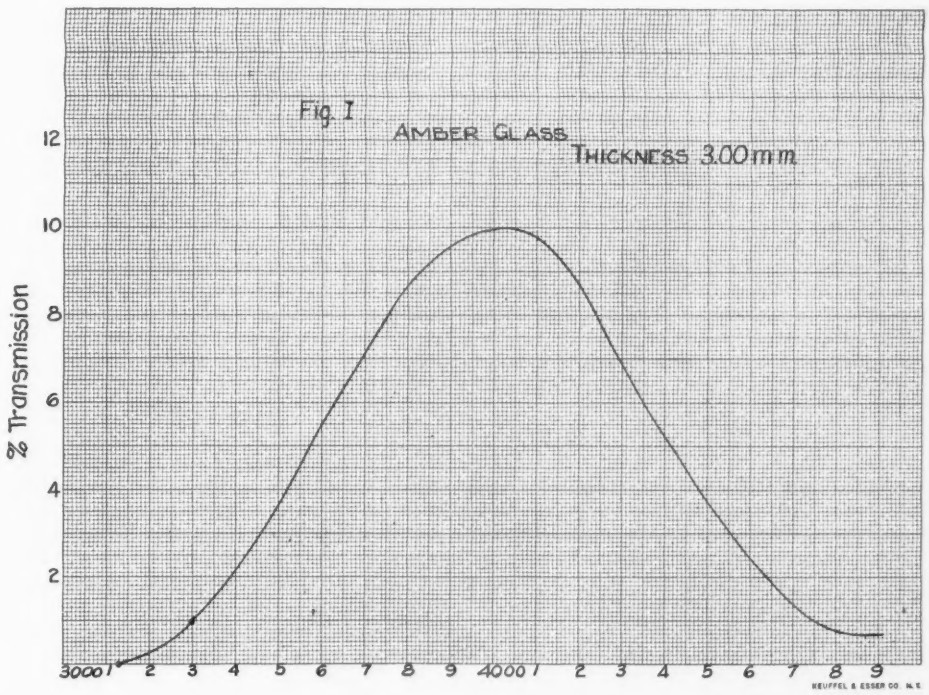
IT IS well known that many pharmaceutical manufacturers and dispensing pharmacists purchase and use amber glass containers for the sole purpose of protecting their products from the deteriorating action of light.

The photochemical decomposition of pharmaceuticals is not confined to any one set of radiations but in the main is due to the blue, violet and near ultra-violet portion of the spectrum.

That amber glass is useful as a filter against these radiations is accepted as a fact by many of the users of amber glass, but if it is realized that the batches used by the many manufacturers of amber glass are not the same and that the product of a single manufacturer may vary due to the many conditions that make it almost impossible to insure uniform absorption properties, it will be seen that all amber glasses will not have the same effectiveness in this region.

To test the proof of this, samples of amber glasses used as containers for certain pharmaceuticals were measured in several ways for their absorption in this portion of the spectrum. As it was impractical to submit the samples to a spectrophotometric study in which the absorptions of the glasses could be expressed in per cent., a simple qualitative test was devised by which it was possible to tell in a few seconds whether or not the sample in question was opaque or transparent to the deep violet and near ultra-violet region.

*Maryland Glass Corporation.



The fluorescent property of certain substances was used as a basis for the test. Fluorescent is defined, in a simple way, as the property possessed by certain substances of becoming luminous when exposed to radiant energy. If then, we interpose a sample of glass between the light source and fluorescent body we can determine, by observing the fluorescence, whether the sample is opaque or transparent to the region being investigated.

The light source used was a quartz mercury arc equipped with a woods filter which is opaque to the visible region and transparent to the deep violet and near ultra-violet. Two compounds were used as fluorescent materials; the first being a solution of 0.1 g of quinine sulfate and 4 c. c. of normal sulfuric acid to a liter of water and the second, powdered sodium salicylate. Both materials were contained in pyrex test tubes.

Approximately 50 samples of amber glass were tested in this manner with the following results; 25 per cent. of the glasses were classed as transparent; 25 per cent. were partially transparent and the remainder were opaque to this region. No distinction was made as to the effect of depth of color in this test, but as a rule the darkest ambers were opaque.

A sample of glass that permitted the radiations to partially pass and which could be classed as a medium amber was measured with the spectroscope and the transmissions plotted. Fig. 1 shows that the glass has a low transmission throughout this whole region and affords a very good check on the fluorescent test.

The same results were obtained when a light sensitive solution was placed in the containers and exposed to light for one hour. The solution used was a one per cent. solution of benzidine in chlorofrom and is broken down by the radiations below 4080 A°[1]. ([1]Coebergh, A. Ph. A. Committee on Colored Glass Containers, Bulletin No. 2, 1927-1928). The results are shown in Table 1.

Table I

Container	*Mercury Arc*	*Sunlight*
Flint	Very turbid	Turbid
Light Amber	Slight turbidity	Slight turbidity
Med. Amber	Very slight turbidity	Very slight turbidity

A series of tests were then made in the blue region of the spectrum by the following method:—Strops of photographic paper were exposed for a period of 45 seconds to filtered light of an ordinary 75 watt electric bulb. The filter was a thick piece of cobalt blue glass and was opaque to all radiations except the blue. The photographic paper was placed in back of the glass to be tested and then exposed, developed and fixed. The degree of blackness is a measure of the transparency of the glass. The glasses on the whole could be divided as in the fluorescent test. Several of the glasses showed dark and light patches, indicating that the variations in thickness and color should be taken in account.

From these tests, it is seen that different amber glasses have very different absorptions in this region, and that it would be worth while of the user of amber glass to test the glass before use by means of the preparations that are to be stored in it.

In conclusion it should be pointed out that it has not been the purpose of this paper to condemn the use of amber glass for the preservation of pharmaceuticals, but only to show the need of testing each lot of containers in order to see whether they meet the requirements for which they are to be used.

Leonhardt Heads Drug Club

The new board of governors of the Drug and Chemical Club, New York, has elected the following officers: President, Frederick H. Leonhardt, of Fritzsche Brothers; vice-president, A. M. Murray; treasurer, H. H. Clutia; secretary, W. O. Badger.

Frederick Henry Leonhardt, the new president of the club, is first vice-president of Fritzsche Brothers, Inc., essential oils and aromatic chemicals, New York. He became connected with this house in 1894, having previously been associated with Schimmel & Co., Germany, which is represented in the United States by Fritzsche Brothers.

Mr. Leonhardt was born in Leipzig in 1873. After completing his school and college courses, he became connected with the house of Schimmel, whose headquarters are near Leipzig.

In addition to the Drug and Chemical Club, Mr. Leonhardt is a member of the Chemists', New York Athletic, Douglaston, Columbia Yacht and North Hempstead Country Clubs.

Dr. Teeple Dead

Dr. John Edgar Teeple, a director and treasurer of the American Chemical Society, and one of the winners of the 1927 Perkin medal for distinguished service to applied chemistry, died March 23 in the Presbyterian Hospital, New York.

Dr. Teeple was one of the country's foremost consulting chemists and a leading figure in the development of an American potash industry from the brines of Searles Lake, California, which latter work brought him the Perkin medal.

Dr. Teeple was born in Kempton, Ill., and was fifty-seven years old. In 1893 he gained his bachelor of science degree from Valparaiso University and a bachelor of arts degree in the following year. Thereafter he taught chemistry and physics at Fremont College, Fremont, Nebraska, for several years. In 1899 he took a bachelor of science degree from Cornell University and in 1903 received a degree of doctor of philosophy at the same university. In 1899 he was elected to Sigma X. From 1899 to 1904 he was an instructor in organic and physiological chemistry at Cornell and in the latter year joined the Industrial Laboratories, this city, as director. He gave a course of lectures at Columbia University in 1917 to students of chemical engineering and industrial chemistry.

James H. Howe Dies

James H. Howe, secretary of Dodge & Olcott Co., essential oils, New York, died March 17. He was in his sixty-seventh year and death was due to pneumonia.

Mr. Howe was born in Jersey City September 24, 1863. He was in the employ of Dodge & Olcott in various capacities for forty-eight years.

His widow and three sons survive. The sons are Lester C., J. Harnell, and W. Russell Howe, the last a member of the botanical drug firm of King & Howe recently absorbed by the United Chemical & Drug Corp.

Burial was in Evergreen Cemetery, March 19.

Determination of Antiseptics*

By Abott W. Allen
and
Irving S. Wright

FROM time to time, new preparations with variable bactericidal properties have been produced. This gave rise to a need for evaluating their comparative efficiency. Of the many methods of evaluation suggested, three with modifications are widely accepted. Of these the Hygienic Laboratory[1] and the Rideal-Walker[2] procedures are in most common use. The *Lancet*[3] method is less widely used, especially in this country.

The general principles of the foregoing methods all devised about two decades ago, are essentially similar. They have individual and common faults, which have become especially evident within the past few years. It becomes obvious to any one working on the subject of antiseptics, from either the practical or the theoretical point of view, that changes in the present technic of evaluating antiseptics are urgent.

The disinfectants in common use at the time these methods were developed were closely allied chemically. They were phenols or derivatives of phenol having, with slight modification, essentially the same properties. Hence it was possible, both theoretically and practically, to compare directly one with the other, using the same single organism for the test. One of the inherent weaknesses of these methods of comparison, the use of a single organism, was less serious at the time of their inception than it is now. Then there was a great need for disinfectants to control epidemics especially of typhoid. Hence the bacillus of this disease was selected as the test organism for the work. If the variety and cultural characteristics of the bacteria responsible for the infections workers were then seeking to control had been appreciated, some other organism more hardy than *Bacillus typhosus* probably would have been selected as the test organism.

It should be remembered that the methods of testing disinfectants were devised at that time for a purpose quite different from our present needs. The disinfection of inanimate objects contaminated with disease-producing germs was the primary need for the different preparations. Today we are largely concerned with sterilization of wounds, or preparation of skin surfaces as germ free as possible without destruction of tissue. Briefly, then the original methods were devised to compare disinfectants, while our need today is for a system for comparing antiseptics intended for use on living tissues.

Antiseptics of today are no longer simple phenol preparations but include a diverse assortment of alcoholic preparations, heavy metals, complex organic derivatives, dyes and halogens. Their individual bactericidal properties differ in various ways, and their action in clinical dilution depends on a complex group of factors, chief of which might be properly considered the organism with which they come into contact.

In a comparative analysis of the efficacy of antiseptics there are many factors, theoretical as well as practical, to be considered. Of prime importance is the resistance of the different bacteria to the killing action of the preparation in a dilution suitable for clinical use. One antiseptic preparation may kill *B. typhosus* in high dilution and be totally innocuous to staphylococci in the same concentration, as determined by the Rideal-Walker or the Hygienic Laboratory methods; and precisely the reverse may be true as well[4]. Such information, in terms of the phenol coefficient describing the efficiency of the antiseptic, is not strictly in keeping with clinical results. Hydrogen peroxide, for instance, readily killed *Bacillus typhosus*, spared *Bacillus subtilis* (a spore former), was moderately efficient in inhibiting *Bacillus pyocyaneus*, and was a slightly better bacterio-static agent for *Staphylococcus aureus*. The statement, therefore, that hydrogen dioxide (which was selected at random[5]) is an efficient antiseptic because it destroys *Bacillus typhosus* expeditiously is, as a matter of fact, misleading. It is efficient according to the technic used for *Bacillus typhosus* only. Such an example, however, is illustrative of the situation existing today in connection with antiseptics in general. The resistance of different organisms, representative of bacterial groups and under a variety of conditions, to a new

*Reprinted from Journal of A. M. A.

antiseptic is usually not even determined before it is put on the market. Furthermore, it is evident that bacteria are not free and isolated in a wound but are intimately associated with the tissues, invading them and often freely intermixed with débris so that they are not readily accessible to the action of the antiseptics. Certain types of bacteria (spore formers) possess a unique protective mechanism which disappears under favorable conditions but retains for the organism its vitality in the presence of deleterious agents. Organisms may develop a fastness to different antiseptics, so that they may even grow in the presence of the product which formerly killed them[6]. There are other preparations that are rendered practically inert on contact with organic matter, so that their action is expended chemically in reacting with the tissues to a greater extent than with the organisms. To overcome these factors without sacrificing the clinical value of the product is still an unsolved problem. However, progress is resulting from the research directed at attaining a reliable antiseptic, germicidal in clinical dilutions, nontoxic, nonirritating, noncorrosive and rapidly efficient.

It is highly desirable that a standard technic for determining the efficiency of an antiseptic under a variety of conditions and using several organisms typifying as nearly as possible the several classes of invaders be adopted. Reddish[7] says:

> Phenol coefficients could still be used by the manufacturer for controlling the uniformity of his products, but the dilutions of these products which are specified for actual use must be based on definite tests against the organism it is desired to kill. Antiseptics for use on the skin and mucous membranes, and in cuts, abrasions, wounds, etc., should be tested against pyogenic organisms, such as *Staphylococcus aureus* and *Streptococcus hemolyticus*. If a disinfectant is recommended for general use, the manufacturer must be sure that the dilutions specified for his product will kill all of the nonsporing organisms which cause diseases of an epidemiologic nature. If he so desires he may recommend only one dilution for general use, but he must be certain by actual tests that this dilution will kill those organisms that are dangerous from an epidemiological standpoint. . . . Further, since liquid antiseptics as ordinarily used on the animal and human body are intended to prevent infection by killing pathogenic organisms, especially the pyogenic group, or to aid in curing such infections if they have already started, the organisms used for testing their suitability for this purpose should be the ones that are actually met with in practice. It is obvious that the ability of an antiseptic to kill *Bacillus typhosus*, the test organism used in our standard phenol coefficient tests, is of little value in determining its germicidal efficiency against the organisms causing infections. A phenol coefficient of an antiseptic is naturally of little value to the medical profession and the layman in making a choice from the large number of germicides available.

Among the chief objections to the present procedures, the following may be mentioned: In the method of the Hygienic Laboratory, the broth is too weak, and the hydrogen ion concentration is too high to support a vigorous growth. *Bacillus typhosus*, the test organism, may lose its resistance when grown in these mediums. There is too wide a range of latitude between the phenol dilution and the resistance of *Bacillus typhosus* to it, as determined by the time element. In the original protocol it is stated that the test is applicable only to "disinfectants chemically related to phenol which are to be used against organisms reacting similarly to the manner in which typhoid reacts and which are destructible within the time and temperature limits of this test." The usual understanding of the term "phenol coefficient" among manufacturers as well as laymen is that it indicates that the disinfectant is a certain number of times stronger than phenol against *all organisms*.

In addition to several of the foregoing objections, the Rideal-Walker test has two others of considerable importance. The effectiveness of many disinfectants does not change uniformly with the concentration, so that determination of the coefficient differs according to the concentrations of the disinfectant used. By definition, the Rideal-Walker coefficient expresses "strength or efficiency of disinfectants under test" which, in reality, indicates relative strength of disinfectants which will kill *Bacillus typhosus*, as compared with the dilution of phenol, which would kill the same organism under conditions as specified in the test[4].

From the practical angle, many inadequacies are evident. No notice is taken of the practical application of the antiseptic, which is, in the final analysis, the sole reason for the existence of methods for testing it. The laboratory standard may be summed up in two words: killing time. The clinical applications are not considered. An antiseptic may be suitable for use on the skin, yet unsuited for the eye. Tissue reaction is neglected. A sloughing area needs different treatment than a clean wound. Certain preparations are used as irrigants, others for wet dressings or transient applications. No attention is given to the fact that one of many or even several different organisms may be present against which the antiseptic may have no bacteristatic action whatever. As far as laboratory procedure is concerned, therefore, with emphasis placed on killing time and the use of an irrelevant weak organism, the practitioner must rely on the trial and error method of evaluation of antiseptics for practical use. Unfortunately, however, there seems to be a great reticence about reporting the unfavorable results, so that the literature contains an unjustifiable preponderance of favorable reports.

Other comparative methods of testing have been suggested by workers from time to time, for a variety of purposes. While these methods may have been open to criticism, especially by those who adhere to the time-honored procedures, the evidence points overwhelmingly to the urgent need for a modern, more comprehensive technic for the comparative rating of antiseptics. The following references support this view: Tinker[8] and Sutton[9] have collected isolated reports from the literature showing the incidence of nonsterile skin cultures both deep and superficial, following various preoperative skin preparations. It has been suggested that cultures of the skin scrapings

be used to determine the antiseptic efficiency. Weyrauch[11] made a comparative study of the phenol coefficient determination of several different antiseptics, using the same technic (the Rideal-Walker) with *Bacillus typhosus* and *Staphylococcus aureus*. The phenol coefficient determination based on the use of *Staphylococcus aureus* differed widely with each antiseptic from the same rating with the use of *Bacillus typhosus*. Reddish[11] and Weyrauch[10] and many others have urged the use of several different organisms in any procedure to be accepted. Hailer[12] showed the variation in the resistance of several different organisms to the bactericidal action of germicides when they were tested by the usual method and when they were suspended on threads of cotton and silk which had been immersed in cultures, in the antiseptic solution. By this method he emphasized the necessity of determining penetrability of the antiseptic. Himebaugh[13] has devised several ingenious experiments to determine irritability of antiseptics to tissue, a feature that should be carefully considered in evaluating antiseptics. Wright and Allen[14] in recent papers have shown the wide variation in bactericidal properties of several antiseptics in the presence of massive infection and superficial contamination. Branham[15] and others demonstrated the fact that antiseptics inhibit the fermentation of sugar by yeast and have urged that the inhibition of the yeast function be used as a guide to the bactericidal action of the different preparations. Richet[16] used the inhibition of lactic acid formation as an index of bacteriostatic action. Thus it is evident that there are many who regard a change in the present system as urgent.

In addition, the following purely practical ideas are offered for consideration:

Manufacturers cannot be held entirely responsible for the making of exorbitant claims for antiseptics which they produce if the standards of evaluation permissible are the methods of two decades ago and the antiseptics of today. The innocent victims of this unfortunate situation are: (*a*) the mass of the public, who have no choice but to believe what is stated plus what is inferred from the advertisements of these products; (*b*) physicians who are out of touch with the more critical scientific world and hence are in practically the same situation as the lay public in judging values of antiseptics; (*c*) even outstanding leaders in medicine and surgery who have not sufficient time nor equipment to carry on experimental work either in the laboratory or clinic, to determine for themselves the value of the antiseptics they may desire to use; they may be carried away by the names of a few of their colleagues, or institutions, or manufacturing chemists, whose temporary enthusiasm gives unwarranted support to new and inadequately tested products.

On the other hand, the physician or surgeon who uses the several available antiseptic products is often at fault in his application of the preparation. This may be the cause of the many unfavorable results noted in connection with the use of some of the antiseptics in common usage today. He must first understand the dynamic pathologic condition at which his medication is directed. Even with the understanding of the problem at hand he may and often does do more harm by medication of the wound than all the germs present would do under ordinary circumstances. Through the use of too strong or too often repeated application of the antiseptic he may destroy normal living and reparative tissues, thereby producing delayed healing, an ulcerating area, an unnecessary slough, or even systemic reactions following the absorption of the toxic products of the tissue degeneration. An agent which inhibits or kills the bacteria present in the wound, but which does not destroy tissue or interfere with the natural defensive body mechanisms, is, generally speaking, far more desirable than one which kills all the organisms present and at the same time accomplishes the destruction of the tissues with which it comes into contact.

It is felt, therefore, that more comprehensive tests are imperative to determine the antiseptic value of a preparation under several different conditions. It is of prime importance that more than one organism be used, as Novy[17] pointed out some years ago. Especially should representatives of the pyogenic group be included, since antiseptics are most commonly directed against them. This point has been emphasized many times during the past ten years, and Reddish[4] finally formulated a procedure embodying this thought. He reported a comprehensive procedure to the Laboratory Section of the American Public Health Association in 1926 as the culmination of several years' work. His method eliminated many of the objectionable features of the prevailing modifications of the Hygienic Laboratory method and combined their good qualities so that a "phenol coefficient" could be determined with the use of several different organisms; namely, *Bacillus typhosus*, *Staphylococcus aureus*, *Corynebacterium diphtheriae*, *Mycobacterium tuberculosis*, *Diplococcus pneumoniae* and *Streptococcus hemolyticus*. By employing these organisms it is possible to ascertain the action of an antiseptic on organisms typical of the different groups of nonsporulating pathogens. This method is, therefore, superior to the older methods in which only one bacterium was used, one now rarely encountered in the clinical application of antiseptics. This procedure should be used as the first step in the determination of the value of an antiseptic. It will weed out many worthless preparations.

However, there are certain essential characteristics which antiseptics should possess and on which this method and all preceding methods give no information, such as (1) the penetrability of the antiseptic;

(2) the action of the antiseptic in the presence of serum; (3) the action of the antiseptic in the presence of massive infection, and (4) the action of the antiseptic on living tissue. These points are adequately estimated by the following methods of testing antiseptics.

In 1924 Himebaugh devised a new method for the testing of antiseptics and germicides, designated as the agar cup plate method. Through the cooperation and kindness of Dr. Himebaugh we are enabled to include his method[7] in this paper, with several important modifications now published for the first time. After a tremendous amount of experimental work, involving many combinations of different percentages of agar, added nutrient mediums and blood serum, Dr. Himebaugh believes the formula presented here is the one best suited for all round purposes of this test. The object was to visualize in the laboratory the results that might be obtained when an antiseptic or germicide is applied to open cuts and wounds. For the purpose of representing as nearly as it is possible in the laboratory the colloidal-like body fluids and tissues, standard beef extract agar was selected, containing from 10 to 50 per cent. normal blood serum. Although there may be defects in the selection of the mediums, it is believed that from the standpoint of food material, salts and blood serum the method is sufficiently accurate for the purpose of indicating the comparative value of antiseptics and germicides when applied to open cuts and wounds over short time periods as well as over long time periods of exposure. As the colloidal-like structure for the mediums, Himebaugh has found standard beef extract agar superior to gelatin. When the amount of blood serum used is 50 per cent by volume, the medium is double strength standard beef extract agar. From 1.5 to 2 per cent. agar is capable of indicating to the greatest advantage differences in antiseptic and germicidal value. The test organism selected was a standardized culture of *Staphylococcus aureus*. The resistance of this organism to most germicidal agents is greater under laboratory conditions than that of most other non-spore-bearing pathogenic organisms. It is representative of the pus-producing type of organism encountered in open cuts and wounds.

The technic in running the test is as follows:[18]

Standard beef extract agar, 250cc., in flasks is cooled to a point at which it will not cause coagulation of the blood serum. Blood serum is then added to make 10 per cent. concentration. The flasks are immediately inoculated with a twenty-four hour broth culture of the test organism. The inoculation is made by first diluting the culture 1:20,000 and then adding 1 cc. of this dilution to the flasks of medium. Immediately after inoculation and mixing by careful rotating, 30 cc. of the inoculated mediums are then transferred to petri dishes. After the agar is allowed to cool and form a solid jelly, a disk having a diameter of 2 cm. is removed from the center of the petri dishes. The cup or depression thus formed is then sealed at the bottom with a few drops of liquid agar. Originally glass stoppers were used to produce the desired cup. This was found a bad practice, causing injury to the medium at the time the glass stopper is removed. A nickel-plated, specially sharpened cork-borer, sterilized in a free flame, has been found most efficient in easily removing the disk from the center of the agar plate. After the medium is allowed to cool and form a solid jelly, 0.5 cc. of the antiseptic or disinfectant to be tested is placed in the cup at the center of the petri dish. If the antiseptic is to be applied for only a short-time period in practice, the technic of the test is to remove the antiseptic by means of sterile filter paper after five, ten, fifteen or thirty minutes in the cup. If the method of application recommended indicates that the product would be in constant application with the tissues over a period of time, such as results in the application of wet dressings, antiseptic powders or ointments, the antiseptic or germicide is allowed to remain in the cup for a period of forty-eight hours. The petri dishes, after treatment with the antiseptic or after its removal from the cup or depression at the center, are incubated for a period of forty-eight hours at a temperature of 37 C., for the purpose of securing growth of any organisms not inhibited by the antiseptic or germicide. The results are tabulated in distances from the cup, showing no growth. A further test is then made to determine whether or not the action observed was inhibitive or germicidal. Small disks (0.1cc.) are removed from the mediums at distances of 0.1 cm. each, until the area where there is visible growth is reached. The disks are transferred to standard beef extract broth in sufficient volume to avoid any inhibitive action, and after breaking up in the mediums are incubated for a further period of forty-eight hours. The results are tabulated, indicating the distances from the cup where the germicidal action was evident from the fact that no growth of the test organism was obtained.

The results of the antiseptic or growth-inhibitive action are photographed or reproduced by photostat in order to preserve a visual indication of the antiseptic or growth-inhibitive action of the sample examined. It is also important to observe and take into consideration the action of the antiseptic or germicide on blood serum. The method as described can be constantly repeated on the same product without variation in results. An additional advantage of this method is the accuracy with which a portrayal of penetrating antiseptic and germicidal effects under conditions simulating as nearly as is possible in the laboratory the application of antiseptics or germicides to broken skin surfaces may be obtained.

The problem of massive infection is frequently confronted in the practical use of antiseptics. We have previously shown that the action of antiseptics in the presence of massive infection may differ widely from their action under the extreme refinements of the present standard methods wherein the organisms are readily available to the action of the antiseptic. Organisms are not commonly found in the relative dilution of the agar cup plate method of Himebaugh. Hence an antiseptic should be tested in the presence of massive infection or contamination. Therefore, the following technic is offered as a modification of that set forth in previous communications. It enjoys the advantage of being more specifically standardized:

Organisms of known virility and resistance to phenol according to the classification of Reddish are used. They are transplanted for three successive days on agar slants of the following composition: Armour's peptone, 10 Gm.; Liebig's beef extract, 5 Gm.; salt, 5 Gm.; agar, 15 Gm.; distilled water, 1,000 cc., adjusted to a *p*H of 6.8. Five cubic centimeters of the agar is placed in each of the usual $\frac{5}{8}$ by $5\frac{7}{8}$ inch lipped test tubes and autoclaved at 20 pounds pressure for one-half hour. Immediately on removal from the sterilizer the tubes are set at an angle of

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CRYSALBA has been adopted by leading dentifrice manufacturers because it offers qualities heretofore not conveniently available in a polishing agent or filler. It was produced after long experiment by Swann Research for these very definite reasons:

1 Equally satisfactory in both acid and alkaline tooth pastes, forming no gas, supplying a gentle polishing quality.

2 Low absorption of Elixir (see chart on next page), thus materially cutting the cost of manufacture.

3 CRYSALBA is inert, having no effect on Pangestin, Pancreatin or other similar ingredients. Neutral and physiologically harmless.

4 Uniformly white, uniform in purity, crystalline structure and absorption, thus simplifying the manufacturing process, requiring no alteration of formula to correct variations.

5 Softer than the enamel of the teeth, it cannot harm them—yet is highly effective as a polishing agent. Absolutely free from grit or black specks.

6 CRYSALBA is tasteless, odorless, insoluble in ingredients commonly used in tooth paste manufacture, and will not harden in the tube.

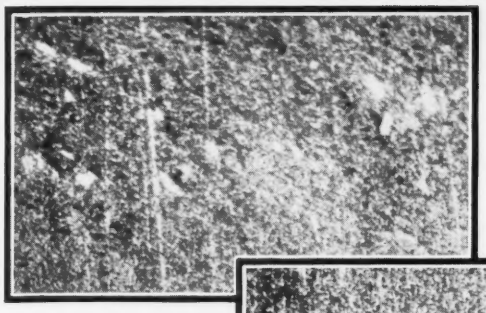
7 It is free from lime and other alkalies; contains no arsenic, lead or other poisonous metals or their salts.

8 About 99% will pass through a 400 mesh screen, which means smoother tooth paste, more even mix, a better product.

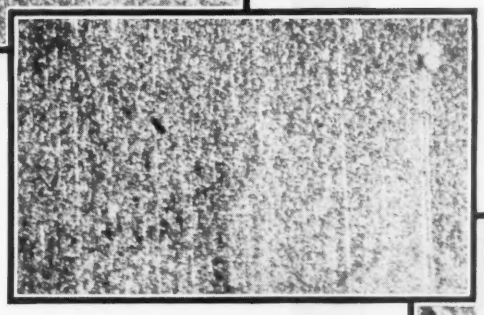
9 It is priced to compete with other bases on a straight price basis and cuts the cost of production by saving on other ingredients and manufacturing operations.

Generous SAMPLES, *mailed gladly on request, will demonstrate to the satisfaction of your laboratory and your production men that* CRYSALBA *can improve both your product and your profits.*

WORLD'S LARGEST DENTIFRICE BASE PRODUCERS

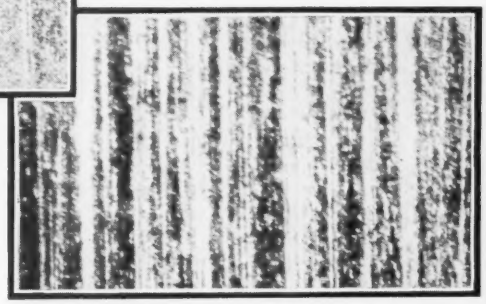


Above: Photomicrograph of electrolytic copper plate, before cleaning.



Left: Photomicrograph of same plate, after cleaning with CRYSALBA. Smooth, but thoroughly cleaned.

Below: Photomicrograph of identical plate, after cleaning with commonly used base. Note scratches of a hard, abrasive material.



unusual and which we will be glad to place at your disposal. Our technical staff is available to assist you with your dentifrice problems.

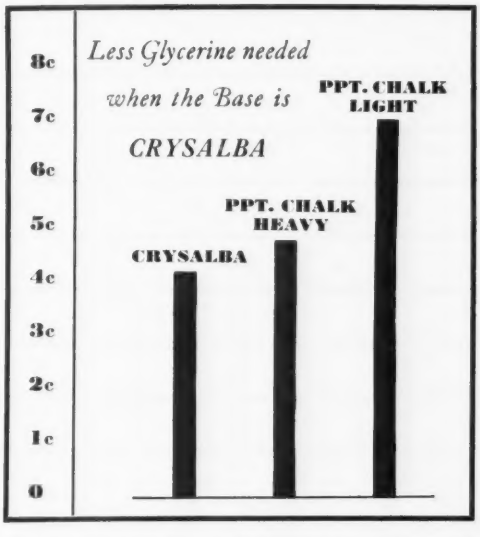
A Product of
SWANN RESEARCH

CRYSALBA was developed to meet the demand of the modern dentifrice industry for an economical and efficient dentifrice base. As the dentifrice specialists of the Swann organization, world's largest producers of dentifrice bases, we recognized a need for a combined base and polishing agent, which would be universally useful. We put the problem up to Swann Research, Inc., and CRYSALBA was the result.

We demanded a dentifrice base that would absorb a minimum of Elixir, because that is expensive. We wanted a base that could be used in an acid or alkaline paste; that would be softer than tooth enamel, yet thorough in its polishing action.

In the work of developing CRYSALBA to fill these specifications we created many dentifrice formulae, whose properties are

LOW ABSORPTION SAVES GLYCERINE



Comparison—Cost of glycerine, per pound of tooth paste (of same consistency in all cases), showing lower glycerine cost when CRYSALBA is used as a base.

WORLD'S LARGEST DENTIFRICE BASE PRODUCERS

Leading DENTIFRICE MAKERS ARE USING THESE 2 HIGH GRADE *Products of* SWANN RESEARCH

SWANN TCP

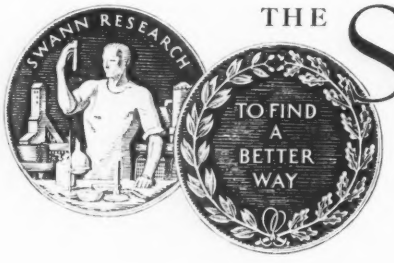
One of the few polishing ingredients that can be used satisfactorily in tooth pastes with an acid reaction, SWANN TCP is equally useful in alkaline or soap-content formulae. Tri Calcium Phosphate is similar in composition to the teeth themselves, but must be of the highest purity, ground soft, white and fluffy for use in high grade dentifrices. ● Swann Research has developed the method which permits production of TCP of uniform polishing power, which can be varied according to your needs, and constant, uniform purity which has its origin in Swann Electrothermal Distillation Process Acid. SWANN TCP gives a creamy, white paste of high effectiveness.

PYRAN

A patented tooth paste base, designed to remove mucin placque without injury to enamel, dentin or gingival margins. It has a polishing power which is softer than the enamel—hence effectively accomplishes this purpose. ● PYRAN aids in creating a proper mouth condition and bacteria resistance, due to the protective action of the Calcium and Phosphate ions it contains. It stimulates blood circulation in the gums, without rupturing the delicate membranes, and helps prevent pyorrhea. It is equally suitable in either alkaline or acid tooth pastes, and extensive laboratory and practical tests of dentifrices of both types, made from more than half a million pounds of PYRAN, have amply demonstrated its superiority.

THE ILIFF-BRUFF CHEMICAL COMPANY

Hoopeston, Illinois **DENTIFRICE DIVISION**



THE SWANN CORPORATION

WORLD'S LARGEST DENTIFRICE BASE PRODUCERS

about 15 degrees to the horizon to insure as nearly as possible even and equal slant surfaces, and also to prevent the formation of the undesirable water of condensation which results from the usual remelting and recooling method of preparing the slants.

From the third successive culture a fresh subculture (known as A) of each organism to be used, is made as follows: With a straight nichrome needle, a smear, or at least three streaks, are made on a fresh agar slant (A). This is incubated at 37.5 C. for twenty-four hours. At the expiration of this time, 10 cc. of the antiseptic to be tested is added to the culture (A). This should be adequate to cover the slant completely when in an upright position. The antiseptic is added at a temperature of 37.5 C. Thenceforth the cultures are maintained at the same temperature by means of a water bath. At intervals of 5, 10, 15, 30 and 60 minutes, transplants from the cultures (A) are made on fresh agar slants (B) or petri plates (mediums as previously described) as follows: With a straight nichrome needle a transplant is removed from the surface of the agar slant (A) and at least three streaks made on the fresh agar (B). This (B) is incubated at 37.5 C. for forty-eight hours and then read.

Subcultures (C) are made from all transplants (B) in which there is doubt as to the presence of growth of the organisms.

It is possible to change the time of transplanting from A to B according to the antiseptic used and the accuracy desired. The killing time can be determined more accurately by shortening this transplant time.

The preceding methods have indicated, exclusively, the action of the antiseptic preparation with or without the presence of organic mediums on the organisms under a variety of conditions. However, in practical use, the bacteria against which the product is used constitute only one part of the whole to be considered. Of what value is a proved antiseptic if in clinical usage its toxicity for tissue is a predominant characteristic? It is necessary, therefore, for a complete evaluation of the product, to determine its effect on living animal tissue, the type with which it will come into contact. Two alternatives are open for investigation: (1) the development of a tissue culture technic in which embryonal muscle and epithelial tissue are used, and (2) direct animal experimentation.

1. By comparing the growth of the tissue to which the antiseptic has been added in clinical dilution with the growth of a similar preparation which lacks the antiseptic, one may determine a phase of tissue toxicity. An additional refinement which might be added would be a similar tissue culture preparation to which a known amount of bacterial inoculation had been added, as well as the antiseptic. This would give a direct comparison of germicidal properties in the presence of a large amount of organic matter and tissue, as well as a simultaneous index of the toxicity of the product toward the tissue.

2. The second phase of tissue reaction, thus far not satisfactorily studied, is that of direct animal experimentation. Many biologic products, several of the drugs, and other alkaloids have been directly standardized by animal tests, so that the clinician has incontrovertible proof of their physiologic action. We may in the future anticipate a somewhat similar result to be derived from a carefully worked out animal experimental procedure to determine the value of antiseptics.

Conclusions—

1. The older standard methods of evaluating antiseptics are not entirely satisfactory as a means of judging modern antiseptics, yet the results with these methods are quoted to prove the great value of products newly introduced.

2. The continuance of the use of *Bacillus typhosus* as a single standard organism for use against pyogenic organisms is undesirable.

3. It is highly desirable that each antiseptic, germicide and bacteriostatic preparation should be tested against a variety of representative organisms and under a variety of conditions simulating the conditions these preparations are expected to combat, before they are made available for general use.

4. The determination of the practical value of antiseptics is the only reason for the existence of these tests, yet the present standard methods fail to give satisfactory information on practical efficacy.

5. Various workers have been striving to correct this situation against strong opposition.

6. This unfortunate situation results in exorbitant claims on the part of the manufacturers; the sufferers being the lay public and also the medical profession.

7. The methods advocated for a complete survey of the value of an antiseptic are as follows: (*a*) The phenol coefficient method devised by Reddish. This will weed out many worthless preparations and will offer a standard of comparison with former products. (*b*) The agar cup plate method of Himebaugh. This method demonstrates the penetrating powers of an antiseptic and its activity in the presence of blood serum. (*c*) The massive infection method described by us. This determines the activity of the antiseptic in the presence of massive infection.

8. The testing of antiseptics by means of tissue culture and animal experimentation should be added as soon as standardized methods are available.

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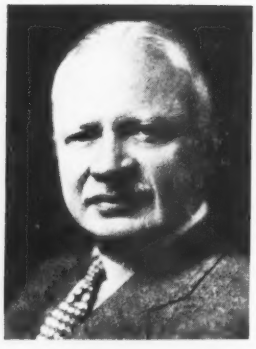
Faces in the News

Gerard J. Danco, recently resigned from Compagnie Parento, is now vice-president of United Chemical & Drug Corp. in charge of perfumers' and soap makers' materials



Frederick H. Leonhardt, of Fritzsche Brothers, Inc., recently elected president of the Drug & Chemical Club, New York

Frank J. Lynch, who as chairman of the entertainment committee of the A. M. T. A. convention was largely responsible for the record attendance at all the functions

W. M. Rose, recently elected president of the Sun Tube Corporation

Industry's Books

Drug Store Business Methods, by Charles W. Pearson, 298 pages, Lea & Febiger, Philadelphia, $2.75 net.

Primarily intended to serve as a textbook for courses in commercial pharmacy. Of general interest are chapters on salesmanship, advertising and store management.

Elements of Practical Statistics, by F. H. Harper, 324 pages, The MacMillan Co., New York, $2.50 net.

A concise and simple statement of the more common principles and methods involved in the technique of statistical analysis.

Laboratory Medicine, by Daniel Nicholson, 433 pages, Lea & Febiger, Philadelphia, Pa., $6.00 net.

Information on the indications, methods and interpretation of useful tests that a medical practitioner should be able to perform.

Patents, Trade-Marks, Copyrights, by Oscar A. Geier, 128 pages, Richards & Geier, 274 Madison Ave., New York.

The law and practice concerning these subjects written for the business man. The fifth and revised edition of this work is available upon application.

Practical Stockmarket Forecasting, by William Dunnigan, 92 pages, Financial Publishing Co., Boston, $2.50 net.

A study and evaluation of eight stock market forecasting barometers for the chief purpose of constructing a composite barometer and describing its applications.

Soviet Foreign Trade, by J. M. Budish and Samuel S. Shipman, 276 pages, Horace Liveright, Inc., New York, $2.50 net.

A rounded picture of the Soviet froeign trade, and particularly its trade with the United States, on the basis of the essential and pertinent facts as seen by the Amtorg Trading Corp.

Vertical Cooperative Advertising, by Lawrence Campbell Lockley, 267 pages, McGraw-Hill Book Co., Inc., New York, $3.00 net.

First-hand facts and data concerning this subject which is one of the more important problems of the drug trade. A study of whether or not this type of advertising pays as its affect manufacturers, wholesalers and retailers.

The Vitamins, by H. C. Sherman & S. L. Smith, 575 pages, The Chemical Catalog Company, Inc., New York, $6.00 net.

This is the second edition of this work which summarizes the information which has been gained regarding the chemical nature of individual vitamins, their importance in life processes, their formation and distribution in nature, their relative abundance in different types of food materials and stability under the conditions to which these are likely to be subjected.

Wages, A Means of Testing Their Adequacy, by Morris E. Leeds and C. Canby Balderston, 77 pages, University of Pennsylvania Press, Philadelphia, $1.50 net.

A study of the adequacy of individual employee earnings to maintain a typical worker and his family. The study consists of two parts: the development of a standard of measurement and the perfection of a technique for comparing the annual earnings of each employee with that standard.

Why Recognize Russia ? by Louis Fischer, 298 pages, Jonathan Cape & Harrison Smith, New York, $2.00 net.

Frankly controversial discussion of the arguments for and against recognition of Soviet Russia. Not a plea for recognition but a declaration that the issue should not be ignored.

You, by A. L. Lewis, 186 pages, The H. M. Rowe Company, Baltimore, Md.

An attempt to show the value of self-evaluation through the medium of short essays on various traits of character and personality.

New Patents Reveal--

UNITED STATES PATENTS

Inactive Menthol

Processes for manufacture of inactive menthol are described in five patents. In first patent process is concerned with manufacture, by heating inactive neomenthol with hydrogenating catalysts and hydrogen with agitation. In second patent catalysts are described to be mentholates of the alkali forming metals. In third patent pressure is used in process, that is the hydrogen gas is introduced under pressure. Neo-isomenthol is used as starting material. Mentholates of alkali forming metals are again used in fourth patent to act upon neo-isomenthol. In fifth patent process consists of heating solid inactive isomenthol with mentholates of alkali-forming metals. K. Schoellkopf, Dusseldorf-Oberkassel and A. Serini, Dusseldorf-Heerdt, Germany, assignors, Rheinische Kampfer-Fabrik Gesellschaft m.b.H., Dusseldorf-Oberkassel, Germany. U. S. P. Nos. 1,776,667 to 1,776,671, filed June 30, 1927.

Collapsible Tube

A collapsible tube has a strip secured across the bottom end. A closure cap is provided for the tube and this cap is provided with means for an attachment to the strip so as to provide a handle for operating the same. William P. Holzmark, University City, Mo. U. S. P. No. 1,776,387, filed August 22, 1929.

Water Emulsion for Medicinal Purposes

A medicine for injection into human body consists of emulsion prepared by dissolving chloesterin and beeswax in olive oil. A solution of a water soluble drug is mixed with it. This medicine is to provide retarded transmission of drug to body after injection. Clauss Burkart Strauch, Berlin, Germany. U. S. P. No. 1,791,878, filed May 13, 1927.

Granular Citric Acid

Process is concerned with dehydrating citric acid in order to obtain a granulated product. The operation is accomplished by heating hydrated citric acid to 35° to 50° C. Richard Pasternak, Brooklyn, N. Y., and Franklin G. Brehmer, Forest Hills, N. Y., assignor, Charles Pfizer & Company, Brooklyn, N. Y. U. S. P. No. 1,792,657, filed September 26, 1929.

Safrol Derivatives

Process is concerned with manufacture of safrol derivatives, such as protocatechuic aldehyde and isoeugenol. Safrol is thus converted into a mixture of isomeric phenol ethers and one of the phenol ethers is oxidized to an aldehyde. Frits E. Stockelbach, Montclair, N. J. U. S. P. No. 1,792,716, filed May 12, 1927.

Antipyrine

This drug is manufactured by methylating an aryl-pyrazolon. The methylation is accomplished with methanol and an alkyl halide whose alkyl radical contains at least two carbon atoms. E. F. Grether and Joseph P. Belsley, Midland, Mich., assignors, The Dow Chemical Co., Midland, Mich. U. S. P. No. 1,792,833, filed July 19, 1928.

Menthol

Menthol is manufactured by acting on hydroxythymol. The latter substance is treated with hydrogen at 130° to 180° C. in presence of hydrogenating catalyst, until eight atoms of hydrogen have been combined. Walter Schoeller, Berlin-Charlottenburg, Hans Jordan, Berlin-Steglitz, and Reinhard Clerc, Berlin, Germany, assignors, Schering-Kahlbaum A. G., Berlin, Germany, U. S. P. No. 1,793,020, filed November 22, 1928.

Isopropyl Ether of Para-Acetylaminophenol

This product, which possesses analgesic powers, is white, crystalline; slightly soluble in cold water and readily soluble in alcohol or ether. It melts at 131° to 132° C. Lambert Thorp, Cincinnati. U. S. P. No. 1,793,030, filed March 1, 1930.

New Drugs

These are phenol compounds of dihydroxy-diphenyl-methane derivatives. The process of making them consists in treating derivatives of dihydroxy-diphenyl-methane with hydrogen in presence of catalyst, at 160° C. Hans Jordan, Berlin-Steglitz, Germany, assignor, Chemische Fabrik Auf Actien, vormals E. Schering, Berlin, Germany. U. S. P. No. 1,778,585, filed July 5, 1927.

Collapsible Tube

The end of the tube through which the contents are introduced and which is afterwards crimped so as to close it, is made in the form of an elongated, relatively rigid member. The end closure has one end extended to form a pair of lugs. An operating disc has an opening through which the lugs are extended and folded down, so that the disc is attached to the end closure. By turning the disc the content of the tube is discharged. Robert J. Rader, New Rochelle, N. Y. U. S. P. No. 1,779,216, filed October 26, 1927.

Betaine Thiocyanate

This compound is claimed to possess great therapeutic value. It is colorless and crystalline; has melting point of 167° C. with decomposition. Rudolf Berendes and Ludwig Schuetz, Elberfeld, Germany, assignors Winthrop Chemical Co., Inc., New York. U. S. P. No. 1,780,860, filed June 18, 1928.

New Drug

This new drug has the chemical name, ethylic-isopropyl alpha-bromoacetamid. It represents an organic bromine compound of eminent narcotic nature and reduced toxic properties. Gustav Hildebrandt, Mannheim, and Erwin Leube and Wilhelm Biehler, Ludwigshafen-on-Rhine, Germany, assignors, Knoll A. G. Chemische Fabriken Ludwigshafen-on-Rhine, Germany. U. S. P. No. 1,780,131, filed May 21, 1928.

Anthraquinone Glucosides

This patent is concerned with a process of isolating water-soluble anthraquinone glucosides from drugs which contain the same. Process consists in treating raw materials with a metallic hydroxide of group consisting of ferric hydroxide, managanese hydroxide and aluminum hydroxide. Then the water-soluble

components are separated from resulting precipitate. Friedrich Kayser and Karl Schranz, Elberfeld, Germany, assignor, Winthrop Chemical Co., Inc., New York. U. S. P. No. 1,796,109, filed July 20, 1927.

BRITISH PATENTS

Gold Compounds

Gold compounds of succinimide are prepared by interaction of chloroauric acid or gold hydroxide or a salt of gold, or fulminating gold, with succinimide in presence of base. Reaction may be carried out in solution, for example in alcohol, and at elevated temperature. Numerous examples are given. Sir W. J. Pope, Cambridge, England. B. P. No. 338,506, filed July 19, 1929.

Organo-Mercury Compounds

Organo-mercury compounds are prepared by treating phenolphthalein, fluorescein, their homologues or halogen derivatives, with mercury oxycyanide, or a mixture of mercury and an alkali cyanide, or by action of an alkali cyanide on mercury compounds of phenolphthalein, fluorescein, etc. These compounds may be obtained by boiling phenolphthalein, etc. with an excess of the appropriate mercury salt. Compounds obtained are bactericides. Thus a cyanmercury-fluorescein compound is formed by heating an aqueous solution of fluorescein with yellow mercury oxide and a solution of alkali cyanide, or by heating a suspension of mercury oxycyanide with a solution of fluorescein containing caustic soda, or by boiling an aqueous suspension of dimercury-fluorescein chloride with sodium cyanide. Other examples are given. T. W. F. Clark, Mitcham, Surrey, England. B. P. No. 338,963, filed August 29, 1929.

Solutions of Soporific Drugs

Method of producing aqueous solutions of barbituric acids, by incorporating therewith a mono-alkylated amide of a lower fatty acid, is applied to preparation of aqueous solutions of other soporific drugs belonging to groups of alcohols, acid amides, urethanes, or cyclic or acyclic ureides. An example of a substance used to produce solution is normal-ethylacetamide. I. G. Farbenindustrie A. G. Frankfurt-on-Main, Germany. B. P. No. 338,985, filed August 29, 1929.

Synthetic Drugs

Basic compounds, suitable for therapeutic and other purposes, are prepared by condensation of saturated or unsaturated fatty acid containing at least ten carbon atoms, or an ester, chloride, amide or imino-ether of the same, with an aromatic primary or secondary amine having a side chain containing tertiary nitrogen. Various examples are given. I. G. Farbenindustrie A. G., Frankfort-on-Main, Germany. B. P. No. 339,359, filed August 7, 1929.

Ointments and Medicines

Emulsions are prepared by mixing esters, containing non-esterified hydroxyl groups, of polyhydric alcohols with higher fatty acids, with water or aqueous solutions in presence of acylated alkylene diamines or their derivatives such as carbon substituted or nitrogen alkylated derivatives. Other substances may be emulsified or dispersed in products so obtained, these substances including glycerin, boric acid, citric acid, fats, fatty acids, waxes, vegetable or mineral oils, colloids, such as rubber, glue, gelatin or dextrin, terpenes, perfumes, latex, cow's milk, lampblack, talcum, zinc oxide. Esters employed include glycol-monohydroxystearate and diethyleneglycol monostearate.

Examples are as follows. Ten parts glycerin monostearate are mixed at 80° C. with 80 parts water containing 0.2 parts of diethyl-amino-ethyl-oleylamide hydrochloride. A stiff salve-like emulsion is formed. A cold cream comprises 18% glycerin monostearate, 1% wax, 6% white petroleum jelly, 4% lanoline, 7% paraffin oil, 5% sweet almond oil, 3% glycerin, 55.5% water, ½% diethyl-amino-ethyl-oleyl-amide phosphate. Tenth normal solution of citric acid may be used in place of water. T. Goldschmidt A. G., Essen, Germany. B. P. No. 339,558, filed February 21, 1930.

Disinfecting Agents

Quinatoxines are employed together with benzoic acid for sterilizing, disinfecting and preserving organic substances and materials or articles containing such substances at ordinary temperatures. In an example a 0.1 to 0.2 per cent. solution of benzoic acid containing a few drops of a suitable salt of eucupinotoxine or vucinotoxine is used. The sterilizing agents may be employed for treatment of washing and rinsing liquids, and for sanitary purposes and medicinal and therapeutic liquids, such as local anaesthetics, for example novocain and injection solutions. They may be used in manufacture of glue, and also in food industry, in sizing yarn, in impregnation of sewing silk and surgical gut, and in treatment of starch and dextrin solutions, vegetable extracts and residues, for example, pomades, digestive and other ferments, for example, pepsin and pancreatin, morphine and other alkaloids, natural and artificial suprarenal preparations, adrenalin, and ointments, surgical bandages and dressings. They can be used with impregnating and with metallic disinfecting agents, for example zinc chloride solutions. E. Schilze, Hanover, Germany. B. P. No. 339,602, filed July 22, 1929.

Therapeutic Bismuth Salts

Basic bismuth salts of organic mercury compounds are obtained by causing a soluble salt of the mercury compound which contains an acid group and in which the mercury is organically bound, to react with a simple or complex bismuth salt. The term "organically bound" is defined to mean compounds in which the mercury does not give characteristic reactions fo the mercury ion. Numerous examples are given. I. G. Farbenindustrie A. G., Frankfort-on-Main, Germany. B. P. No. 339,760, filed November 15, 1929.

Therapeutic Products

These are condensation products of glycerol monohalogenhydrins with aliphatic ketones such as acetone, which products are distilled over alkaline earths with the result that hydrochloric acid is split off and the corresponding derivatives of alpha-oxyallyl alcohol are obtained. The same products are obtained similarly from compounds of aliphatic ketones with other monoesters of glycercol, for example, the benzene-or toluene-sulphonate. Schering-Kahlbaum A. G., Berlin, Germany. B. P. No. 339,882, filed February 17, 1930.

Synthetic Drugs

These synthetic drugs are dinitro- and diaminopyracridones. By nitration of pyracidrone, a dinitro compound is produced, which on reduction yields the corresponding diamino compound. Examples are given of nitration of pyracidrone using a mixture of nitric and sulphuric acids as nitrating agent and of the reduction of the product with stannous chloride and hydrochloric acid. Deutsche Gold und Silberscheideanstalt vormals Roessler, Frankfort-on-Main, assignor, I. G. Farbenindustrie A. G., Frankfort-on-Main, Germany. B. P. No. 339,932, filed September 28, 1929.

Hormones

Physiological activity of extracts of thymus glands is ascertained by determination of smallest dose which, on injection into an immature female animal, will prevent normal occurrence of rutting. An extract made with Ringer's solution in usual manner

(*Continued on page 372*)

The Literature Says:-

Relation of Carotene to Vitamin A

Six numbers of samples of palm oil were examined as follows:—a washed and neutralized sample, a partly hydrogenated sample, retaining a yellow color similar in depth to that of natural butter, a fully hydrogenated sample, quite colorless, a palm oil from the Gold Coast a palm oil from West Africa and finally an intensely pigmented West African oil. Physiological tests were carried out with these oils.

Results of experiments show that vitamin A content of palm oil is due to carotene contained in it. Carotene is apparently whole of pigment of oil, as spectographic study does not reveal any other colored substance. The results of biological experiments can be correlated with amountof carotene contained in each sample. Carotene is destroyed during hydrogenation of oil, and fully hydrogenated oil, which is colorless, has no growth-promotin gproperties. When carotene is removed by absorption the oil is again left without any physiological value. A small proportion of pigment can be recovered from absorbent and shown to have retained its activity. Considerable loss of pigment occurred, presumably by oxidation, at surface of absorbent.

Carotene is easily destroyed in solutions by treatment with absorbent charcoal. In a solution of carotene in ethyl laurate practically all pigment appears to be destroyed by oxidation on surface of charcoal, as none was recovered from absorbent. Both decolorized and absorbed fractions are entirely devoid of biological activity. In palm oils it appears that some substance of nature of an anti-oxidant protects carotene to some degree from oxidation. In cod liver oil natural pigments can be entirely removed by absorption without destruction of vitamins. These charcoals show no preferential absorption for vitamin A of cod liver oil and small amounts absorbed are not destroyed by oxidation, probably on account of some protective mechanism in cod liver oil.

Results of experiments, on whole, emphasize fact that vitamin A activity of vegetable sources is carotene, and that it essentially differs from that of fish liver oils. Carotene is easily absorbed by suitable charcoals and is readily oxidized on their surface. Bashir Ahmad, Journal of the Society of Chemical Industry, 1931, pages 12T to 14T.

Moringa Aptera Seed from Egypt

Kernels, containing 4.9 per cent. of moisture, from seeds, weight half a gram, 51.2% of shell of moringa aptera yield on extraction 50% of oil with density at 15° C. of 0.9151, index of refraction at 40° C. 1.461, acid number 0.5, saponification coefficient 188.2 iodine coefficient (Wijs three hours) 71.2. Percentage of unsaponifiable matter present in oil is ½, and solidification point of fatty acids is 28.1° C. Residual meal has moisture content of 8.7%; it contains 48.6% crude proteins, 2.6% fat, 28% carbohydrates etc., by difference, crude fiber 6.6%, ash 5.5%. Anon. Bull. Imperial Institute, volume 28, pages 276-9.

Dioxypyramidone

This is a new analgesic that does not give characteristic color reactions of antipyrine or pyramidon. These substances, when added to dioxypyramidone are easily detected by nitrous acid. Dioxypyramidone reduces Fehling's solution. It gives with potassium ferrocyanide and warm hydrochloric acid a dark green coloration, and when heated with sodium hydroxide it yields sodium oxalate and alkaline vapors. H. Sancer, Pharm. Zentrallblatt, volume 71, pages 673-5.

Colorimetric Determination of Adrenalin

The ammonium molybdate test used for determination of tannic acid, is applied to adrenalin. One cc. of liquor adrenalin hydrochloride is mixed with 2 cc. of 10% aqueous ammonium molybdate and diluted in a Nessler cylinder to 50 cc. The depth of color is compared with that given by an adrenalin solution of known concentration or by a standard solution of tannic acid; 1% aqueous tannic acid is treated as above, and 5 cc. of the colored solution are diluted to 50 cc., the color thus obtained matching that given by 1 cc. of liquor adrenalin hydrochloride (B. P.). Cocaine hydrochloride, kerocaine, stovaine, benzamine lactate, borax, sodium chloride, boric acid, chlorobutol, chloroform, rose water and aq. sambuci do not interfere. Reducing agents, that is ferrous salts, bisulphites, alcohol, etc. and urine interfere. J. Rae, Pharm. Jor., volume 125, page 451.

Infusum Radicis Ipecac

Infusions of concentrations below 400 contain the bulk of alkaloids present in original drug by ammoniacal ether extraction method. More concentrated infusions contain less original alkaloids. Thus a one to twenty infusion contains only about half. Concentration under a vacuum of dilute infusions results in considerable decrease of alkloid content. Decoctions, prepared by above method, contain same amounts of alkaloid as infusions of equal concentration, and prolonged treatment does not raise yield in either case. When residue from concentrated infusion is again extracted, a further quantity of alkaloid is removed, but total yield remains deficient. Infusion of such a residue with dilute hydrochloric acid brings the total yield almost to that indicated by the ammoniacal ether extraction method.

Infusion of original drug with dilute hydrochloric acid (2 grams) with 40 cc. of water and 10 cc. of half normal solution of hydrochloric acid, followed by second infusion with 50 cc. of water, gives however, higher values for alkaloid content than German official method, which uses ammoniacal ether for extraction. Figures from latter method represent only 87% of alkaloid actually present. Original drug, therefore, contains alkaloid in a form, possibly a glucoside, that is removed neither by infusion nor by ammoniacal ether extraction. K. H. Bauer and K. Heber, Pharm. Zentrallblatt, volume 71, pages 513-518.

Microchemistry in Essential Oils

Review of use of microchemistry in essential oils and perfumery material is given. Details of methods used are described and apparatus employed is also discussed in detail. Microchemical examination of such raw materials as benzoin, peru and tolu balsams, storax, camphor, valerian root, nutmeg and mace, cloves, tonquin beans, cinnamon and aniseed is described in detail. Other methods are concerned with identification of pure compounds, including benzaldehyde, bourbonal, menthol, piperonal and thymol. Essential oils are also examined by microchemical means and tested similarly for presence of adulterants, such as nitrobenzene in benzaldehyde, and coumarin in vanillin. Microdetermination of prussic acid is also described. L. Rosenthaler, Perfumery and Essential Oil Record, volume 21, 277-286.

Laurel Leaf Oil

Laurel leaves gathered from Russian plants, yield from 0.38 to 1.38% essential oil with the following characteristics:—specific gravity at 20° C. 0.9128 to 0.9332; optical rotation -14° to

-23.26°; refractive index, 1.4641 to 1.4722; acid coefficient 0.44 to 4.25; ester number, 30.57 to 59; acetyl ester number 51.86 to 70.5. Its composition is as follows:—cineol 50 to 53.8% and phenols 4 to 6.6%. Terpenes identified in oil include laevo-alpha-pinene and possibly beta-pinene and phellandrena. Oil and Colour Trades Journal, 1931, 11.

Salol Mouth Preparations

Use of salol for mouth washes, toothpaste and like has been curtailed within recent times due to discovery that stomatitis (inflammation of mucous membranes) was observed after use. This was brought about by improper use of salol (phenyl salicylate) and also due to personal idiosyncrasy. Proportion of phenyl salicylate used should not be greater than 20 to 35 parts per thousand. In tooth pastes proportion should be limited to 10 parts per thousand.

Salol mouth washes may be made in the following manner: 800 parts 96% alcohol are mixed with 10 parts salol, 2 parts peppermint oil, ½ part oil of cloves and same proportion of anise oil. Another preparation calls for 775 parts 96% alcohol, 15 parts salol, 0.4 part oil of cloves, same proportion of sweet fennel oil, and 0.04 part saccharin. Then again 80 parts 96% alcohol are mixed with 17 parts water, 2 parts menthol, 0.05 part saccharin, 1.4 parts salol and 0.05 part oil of cloves.

A more complicated preparation calls for 36 parts salol, 1200 parts 96% alcohol, 2 parts saccharin, 24 parts oil of peppermint, 2 parts anise oil, same proportion of fennel oil, 1 part oil of cloves, 10 parts Ceylon cinnamon oil, 1 part liquefied carbolic acid, 2 parts salicylic acid and 130 parts distilled water.

Preparations for Perspiring Hands

A number of preparations are described in Apotheker Zeitung. One is a salve made as follows: 20 parts paraffin are mixed with 45 parts olive oil soap, 90 parts anhydrous adeps lanae, 150 parts olive oil, 400 parts seb. salicylate, 5 parts thymol. This preparation is applied to the hands at night and in the morning the hands are washed in a mixture of equal parts of water and formaldehyde. Another preparation claimed to give good results contains 10 parts naphthol, 180 parts alcohol, 20 parts spiritus coloniens. This preparation is used at night and is also applied several times during the day.

Pulverulent preparations are made as follows. Equal parts by weight of the following substances are mixed together:—tannic acid, lycopodium, pulverized iris rhizome, talc, and rice starch. Another preparation contains 15 parts salicylic acid, 5 parts boric acid and 60 parts glycerin and alcohol. This preparation is rubbed into the hands three times daily.

Washing the hands with alcohol or alcoholic preparations has also often been recommended. Thus solutions of 5% boric acid or 3% salicylic acid or 2% formaldehyde solution in alcohol are used. Various perfumes may be added.

Adulteration of Essential Oil

Lemon oil adulteration is treated at length. Also orange oil, oil of bergamot, petit grain oil, neroli oil, orange flower oil, lavender oil, geranium oil, oil of cloves, oil of cassia, oil of cinnamon, patchouli oil, etc., etc. In each case details are given of the inherent characteristics of the oil and the methods and substances used to adulterate them. Der Parfuemeur, 1931, pages 139ff.

Determination of Morphine

The general method of treatment with calcium hydroxide is preferred to the ammonia method. It is not possible quantitatively to decompose solutions of morphine in calcium hydroxide by means of carbon dioxide. Ammonium carbonate is satisfactory for this purpose. The following method is recommended.

A sample of opium extract, 0.2 gram in weight, is ground with slaked lime from two grams of pure calcium oxide and mixture is rinsed with solution of lead acetate, containing 0.32 gram in 30 cc. of water, into a 100 cc. flask. After two hours, during which it is frequently shaken, the solution is filtered through a funne of specified dimensions and porosity and the filter flask and funnel are washed with 30 to 40 cc. of water. Filtrate is treated with 3 cc. of ammonium carbonate solution and evaporated to dryness on water bath. Residue, after being further heated to drive off ammonia, is taken up with 20 cc. of alcohol. Then 4 g. of bone charcoal are added and mixture is heated to boiling. After 30 minutes heating with shaking, solution is filtered through a hot water funnel and the washings are titrated with tenth normal solution of hydrochloric acid, using lacmoid as indicator.

Opium powder is treated similarly, a sample of 0.4 gram being taken for analysis. Five gram samples of tinctures are evaporated to dryness and the residue is treated as above. The ammonium carbonate reagent is prepared by dissolving 19.6 grams ammonium carbonate crystals in 21.3 grams of 10% ammonia solution and diluting to 100 cc. L. David and I. Novak, Pharmazeutische Zeitung, volume 75, pages 1419-1420.

Determination of Chamomile Oil

The method which involves taking a 200 cc. sample of the distillate followed by another 100 cc. is claimed to give low results, for the reason that the leaves are not completely extracted. A simplified method, in which 1,000 to 1,200 cc. of the distillate are collected and the final salting out is avoided, gives more satisfactory results. M. Bergmann, Pharmazeutische Zentralblatt, volume 71, pages 785-8.

Effervescent Bath Salts

This preparation comes in cubes or tablets composed as follows: 400 parts pulverized sodium biborate are mixed with 200 parts anhydrous sodium sulphate, 300 parts sodium bicarbonate, 225 parts pulverized tartaric acid, 50 parts sacchar. lactis, 25 parts talc and 15 parts oil of pinus sylvestris and oil of pinus pomilio and passed through a fine-meshed screen two or three times. A distinctive color is given by addition of such coloring matters as fluorescein. Addition of talc and sacchar. lactis (that is milk sugar, lactose) is required for binding in tablets. These substances also enhance the appearance. Pharmazeutische Zeitung, 1931.

The Maltbie Chemical Co., Newark, N. J., has instituted a research fellowship at the Philadelphia College of Pharmacy and Science to continue work already done under a fellowship granted by the same firm last year. The subject of these investigations is the germicidal value and toxicity of creosote and its fractions. Work began March 1 and continues until July 1. The holder of the fellowship is Ralph Pressman, 1929 graduate of the Philadelphia College, who was the holder of the fellowship last year. Work is under supervision of Dr. Horatio C. Wood, Jr., professor of material medica and Dr. Louis Gershenfeld, professor of bacteriology and hygiene.

The Alsop Engineering Corp., 39 West 60 st., New York manufacturers of a complete line of syrup room equipment announce that 1931 marks their tenth anniversary.

During this time, they state, over 45,000 "Hy-Speed" machine, filters, and glass-lined tanks have been sold to satisfied customers.

The growth of this concern has been very marked. In 1921, they occupied two small rooms. Today their offices and service department alone occupy over 9,000 square feet; which includes the largest display room in New York for liquid handling equipment, all in addition to a large factory in the Bronx.

Belgian Brading Co., Inc. essential oils and aromatic chemicals, for many years located at 211 Water st., announce the removal of their business to more extensive aquarters. After May 1 they will be located at 16-18-20 East 12th st., New York.

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Lemon juice . . honey . . . and other difficult constituents of cosmetic creams, are held in perfect suspension without change, when Falba Absorption Base is used.

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Cholesterin, used in your hair preparations, has the effect of replacing this loss where dandruff has resulted from lack of this substance in the scalp.

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Scott's Emulsion Sold

Harold F. Ritchie, New York, and F. M. Shoemaker, Elmira, N. Y., have purchased Scott's Emulsion and its factories and subsidiary companies throughout the western hemisphere. Scott's emulsion has been manufactured by Scott & Bowne, Bloomfield, N. J., for nearly seventy years.

Harold F. Ritchie is president of Harold F. Ritchie & Co., New York, International Proprietaries, Ltd., owners of Eno's Fruit Salt. He is also president of The Pompeian Co., makers of Pompeian creams, and several other companies.

F. M. Shoemaker, who with his brother is owner of the Frostilla Company, Elmira, N. Y., and also chairman of the board of the Pompeian Company.

The Ritchie organization which carries on its sales work throughout the world will direct the sales of the newly acquired product, and the Shoemakers will take care of the business and production departments along the same lines as the Pompeian business is handled.

Wafer Returns to Industrial

Joseph M. Wafer, recently Eastern Sales Manager of American Solvents & Chemical Corp., has resigned that position to become Assistant Sales Manager of Industrial Chemical Sales Co., New York, in charge of sales of Snow Top brand precipitated chalk, and Nuchar brand activated carbon. Mr. Wafer resigned from a similar position with Industrial Chemical Sales Co. less than two and one half years ago to enter the alcohol business with Rossville Commercial Alcohol Corp. which later became part of American Solvents & Chemical Corp. Now Mr. Wafer returns to Industrial in a position of wider scope.

Moulded Cap Improvements

Anchor Cap & Closure Corp., Long Island City, N. Y., has announced several improvements in connection with its new molded cap. Chief among these is the liner retaining ledge and liner recess which holds the liner in place in the cap yet at the same time allows it to rotate freely. This is accomplished through a small ridge or raised ledge encircling the inside of the cap. This is just far enough below the top of the cap to allow space for the liner to fit easily, in the liner recess. Thus the liner cannot fall out, oversize liners are eliminated, and the liner will stay in the cap and not adhere to the top of the container.

James Wood Johnson, president of Johnson & Johnson, Inc., manufacturers of surgical dressings and supplies, New Brunswick, N. J., seventy-five years old, was married March 11 to Miss Nora McBain, thirty-two years old, who was for six years a nurse at the Middlesex Hospital in that city. She is a native of Scotland and had been Mr. Johnson's nurse for the past two and one-half years. Mr. Johnson's first wife died in 1926 and there are two daughters of that marriage.

Givaudan-Delawanna has just been awarded by the State of New Jersey a certificate of merit for a perfect safety record for 1930. This means that there was no labor time lost in the factory due to accidents. This is especially significant when it is remembered that numerous highly concentrated acids and alkalis are handled daily in the production of aromatic materials.

J. D. Malcolmson, director of the research engineering department of the Robert Gair Co., New York, delivered a lecture, April 6, before the students of the Division of Retailing of New York University, on "The Importance of the Package in Merchandising."

The Packaging Exposition, Conference and Clinic of the American Management Association, will be held at the Hotel Pennsylvania, New York, May 19-21.

Elmer Bobst Honored

Elmer H. Bobst, treasurer and general manager of Hoffmann-LaRoche, Inc., was honored at the plant of the company on April 16 by 300 members of the organization to mark Mr. Bobst's twentieth anniversary with the company. An elaborate luncheon was served in the Roche dining room with five other members of the Roche Twenty Year Club acting as hosts and hostesses.

Presentation to Mr. Bobst of a platinum watch, an interesting historical portfolio, and many beautiful flowers were made by Otto von Schrenk, a director of the company who acted as toastmaster.

Golden Peacock in New Plant

The laboratories and general offices of Golden Peacock, Inc., Paris, Tenn., have been moved to a new building in order to take care of increasing business. The floor space, now 27,000 square feet, is practically double that of the building formerly occupied.

Golden Peacock, Incorporated, Paris, Tenn., announces a recent affiliation with Robert P. Gust Co., Inc., to have charge of the marketing of Golden Peacock Bleach Creme on the West Coast. An intensive radio campaign, supplemented with magazine advertising, is in progress now in the section of the country centered by Los Angeles.

By recent appointment, C. J. Ezell is Sales Manager, and Mitchum E. Warren, Advertising Manager. Both men have assumed active charge of their respective departments in the home office, Paris, Tenn.

Tru-Lax Management

Tru-Lax Corp., Newark, N. J. announce that the company is now under new management. Louis Colen of Cleveland, who has been with Tru-Lax for many years, has been appointed general sales manager.

It is also reported that all matters pertaining to the controversy between Ex-Lax and Tru-Lax have been mutually settled, and that Tru-Lax are authorized to manufacture and sell Tru-Lax Chocolate-Mintized Laxative in the new style package as well as all other Tru-Lax items.

A career of almost half a century in the chemical manufacturing industry was brought to a close with the recent retirement of William A. Hamann, as chairman and director of the Roessler & Hasslacher Chemical Co., Inc., New York. Retirement was due to a desire to give up active business.

It was in 1885 that Mr. Hamann joined Roessler & Hasslacher as the present company was then known. This was four years before the firm changed its name to The Roessler & Hasslacher Chemical Co. His early years with the company were spent in the business department, as clerk, shipper and many other jobs, for the company was small. This varied experience stood Mr. Hamann in good stead for as the company grew, Mr. Hamann gradually assumed greater responsibilities. He was successively secretary, treasurer, vice-president, and in 1926, president of the company. In the early part of 1928, Mr. Hamann became chairman of the board.

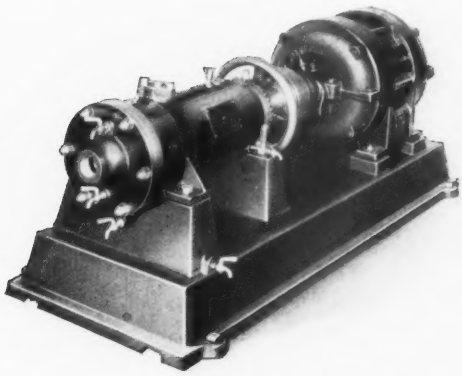
U. S. Industrial Alcohol Co., has placed the common stock on a $2 annual dividend basis with the declaration of a 50c distribution payable May 1 to stock of record April 15. The previous dividend was at the rate of $6 per share.

Lane Drug Stores, Inc., report a loss for the year 1930 after depreciation and amortization of $175,032. This compared with loss of $305,694 in 1929. Dividends on preference capital stock have not been declared or paid since Dec. 31, 1929.

A NEW DEVELOPMENT!

FOR THE MANUFACTURING DRUG TRADE - - -

The Charlotte Junior!



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THIS AND OTHER NEW MODELS OF CHARLOTTE COLLOID MILLS WILL BE ON EXHIBIT AT BOOTH 418, 13th EXPOSITION OF CHEMICAL INDUSTRIES, AT GRAND CENTRAL PALACE, MAY 4th to 9th.

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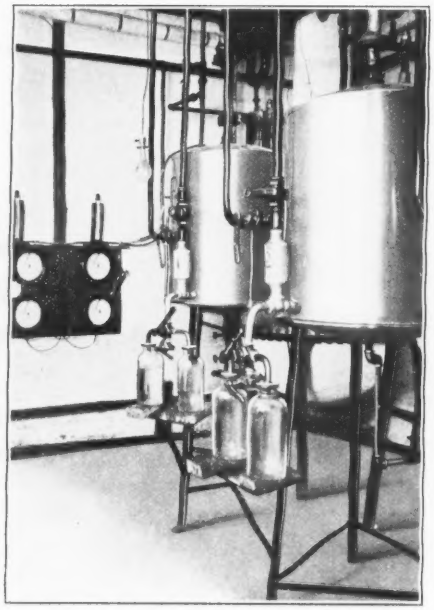
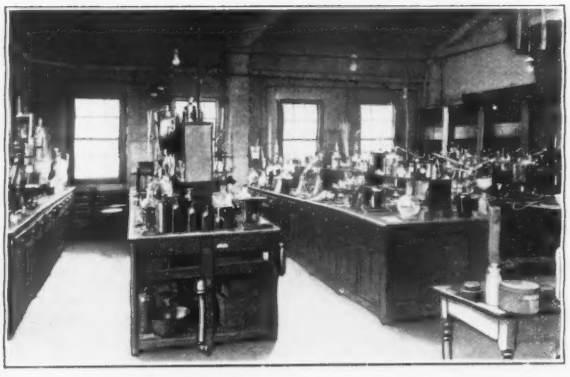
Amyl Salicylate	Ethyl Benzoate	Linalyl Acetate	Oleo Resins
Benzophenone	Ethyl Phenyl Acetate	Linalool	Para Cresol Acetate
Benzyl Acetate	Eugenol	Methyl Acetophenone	Para Cresol Phenylacetate
Benzyl Alcohol	Geraniol	Methyl Benzoate	Phenyl Acetic Acid
Benzyl Benzoate	Hydroxycitronellal	Methyl Cinnamate	Phenyl Ethyl Acetate
Bigarol	Irine Extra Pure (Ionone)	Methyl Eugenol	Phenyl Ethyl Alcohol
Citral	Iso Butyl Benzoate	Methyl Ionone	Phenyl Ethyl Cinnamate
Citronellyl Acetate	Iso Butyl Phenyl Acetate	Methyl Iso Eugenol	Rhodinol

Its success is beyond question.





Research and Analytical Laboratory

Units in the Distillation Department showing vacuum indicator and electric temperature control. Every piece of apparatus that uses heat is equipped with this "tell-tale" which makes a permanent written record 24 hours a day.

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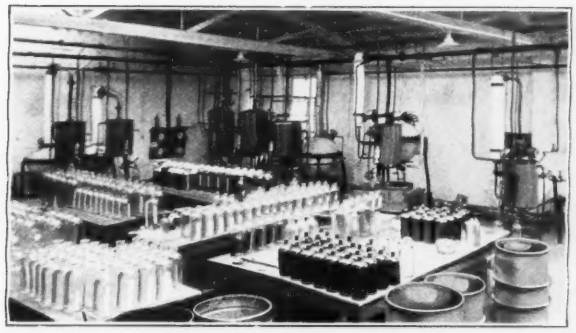
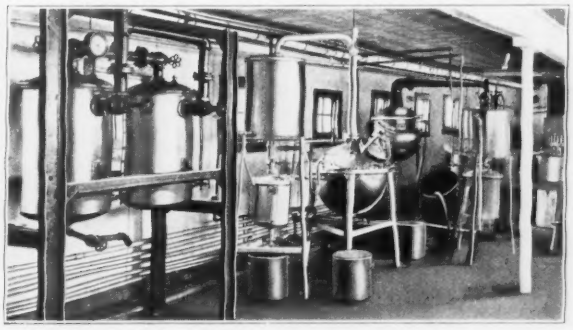
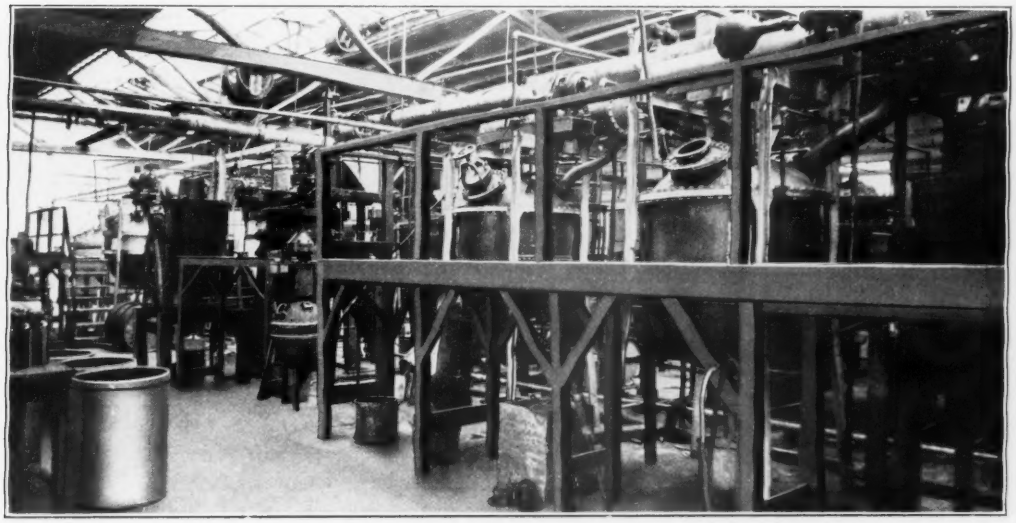


View of one corner of the Distillation Dept.



Section of True Fruit Flavor Manufacturing Dept.

View of Reaction Department



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Lavandin*

THE Lavender Congress of 1919, covered all of the true lavender stations, from Grasse to Grenoble, taking in Puget-Théniers, Annot, Bareme, Castennane, Valley of the Verdon, Sault, Sisteron, Puis-les-Baronniers, Nyons, Veynes, Gap, Briancon, la Grave and Grenoble. At all of the stations where we found true lavender and aspic, or spike lavender, we also found the so-called *lavandins*. We took a few cuttings from a number of the plants and allowed them to take root under glass at the Faculty of Medecine at Lyons, and it is with these subjects that Mr. Giraud, doctor of pharmacy, was able to achieve his magisterial thesis on the lavandins.

We noticed that the flowers of the various subjects picked during the Congress contained an oil rich in lynalyl acetate (approximately 20 per cent). We had thought that the greater part of our subjects gave an oil varying in amount of lynalyl acetate, that certain subjects did not exceed 8 per cent, but, on the other hand, others producing an oil rich in ether, in order to arrive at the average of 20 per cent.

As it was difficult to carry on research among the thousands of plants we had under cultivation for the amount of lynalyl acetate in each individual plant, we chose the system of making our experiments with numbered plants, gathered in the fields.

We chose from ten stations in the neighborhood of Crest (Drôme), taking ten individual plants from each station, carefully numbered from 1 to 100.

When the plants were in bloom we picked the flowers, which were weighed when fresh and then we commenced the distillation.

We had built especially a boiler generating five atmospheres pressure, a steam expansion apparatus with which to attack the flowers with only a half atmosphere, in order that the steam could easily bring with it the oil, for, as everyone knows, it is not distillation, properly speaking, but only the drawing out of the oil by steam.

More than the 100 numbered plants were distilled, and we noted all of the necessary details, in order to easily control the results obtained:

(1) The type of lavandin (form true lavender or spike lavender);
(2) Heighth of floral stems;
(3) Weight of fresh flowers;
(4) Number of verticils per spike;
(5) Number of flowers per verticil;
(6) Total flowers per spike;
(7) Weight of oil obtained;
(8) Percentage of oil;
(9) Amount of lynalyl acetate.

It is thanks to all of these details that we arrived at an opinion on the actual value of certain lavandins.

We found some lavandins, the oil of which titrated 40 per cent acetate lynalyl, but these lavandins produces only 1 kilogram of oil per 100 kilograms of flowers. Others gave 2 kilograms and even 2-1/2 kilograms of oil per 100 kilograms of flowers, but an oil not so rich in ether. We stopped on certain important types, two or three, one of which we designated under the name of "Eureka," furnishing 3 kilograms 100 grams of oil per 100 kilograms of flowers, containing 34.33 per cent ether. This oil is very much similar to the Standard sent to the United States by the chemist Schimmel, which runs to 38 per cent.

Our research work continues from year to year, and we are hoping to make more and more progress. A number of new types have been planted and grown, and these will be distilled next July. Commencing this year, we have made cuttings of the most interesting types, and we hope to have in several years a number of robust plants which the growers can utilize with absolute confidence. These plants should prove more robust than the true lavender and our lavender Officinale. In our opinion, this will mark a revolution in the culture of lavender, for the producers will be able to furnish a very large quantity of oil, quickly and at a low price.

(Continued on page 365)

*Translated from an article by Messrs. Abrial, Belle and Bruyat in a recent number of Alpes et Provence.

THE NEWPORT AROMATICS

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NEWPORT LINALOOL EXTRA

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Some Modern Cosmetics

WITHIN recent times use of cosmetics has assumed more of a medical character. The matter use has been subjected to physiological and pharmacological study. Knowledge of internal secretion involving the study of hormones has been applied to the preparation of creams and has shown that these products are important therapeutic agents. Thus to-day skin foods or creams are being prepared with a certain hormone content.

Skin foods contain skin extracts just like ovary preparations contain the extracts of animal ovaries. The purpose is to provide an agent for stimulating the deep-lying skin tissues. Strange to say skin extracts used in these are obtained from young lizards and turtles, and the reason for their selection lies in the fact that their skin possesses extraordinary powers of regeneration.

These creams are massaged into the skin of the face and hands and are claimed to invoke opening of the pores and to increase of liquid content in the top skin and true skin. The skin is made more elastic and old, dried-out skin is freshened, actually rejuvenated with a certain smoothening of the wrinkles and general all-around improvement.

It is also possible to produce valuable products by incorporating extracts obtained from testicles and ovaries of animals. It is known that the hormones possess the power of stimulating other organs and parts of the body in addition to those organs from which they were originally obtained in the animal. Hormone extracts are used in concentrated form and are dissolved in alcohol or oil and thus added to the cream base. The skin hormones are stable towards heat to a certain degree. The user of these hormones in the manufacture of skin foods must be sure that great care has been taken to extract the skin of animals immediately after they have been killed, for putrefactive poisons quickly form after death in the skin, and when such extracts are then used, the skin foods are dangerous to the user. They readily cause eruption and inflammations of the skin and may even lead to blood poisoning. Concentration of hormones in skin creams may vary from one to ten in one thousand. The base of the cream should be a fat or grease and the product may also be perfumed to taste. In their use, the skin of the face or hands is first given a thorough cleansing with soap and water and the cream thoroughly rubbed into it. The preparation is best administered before going to sleep. The treatment is repeated every second or third day and lasts for two to three months.

Face lotions are also important products in this branch of cosmetics. They are of various kinds and contain different ingredients. Face lotions are moreover universally used, both by men and women. They are used not only for the purpose of cleansing the skin, but also for improving the complexion and furthermore for removing the sting of the razor after shaving. These cosmetics are again possessed of medicinal properties and when the correct one is used according to the character of the skin of the individual they are highly beneficial.

One of the best known and most active substance for treatment of the skin of the face is precipitated sulphur. Sulphur is generally used in these preparations in a very finely divided state in suspension. Naturally such products must be shaken before they are used, as the sulphur precipitates. The use of colloidal sulphur is far more advantageous, for in this state the sulphur is in the correct status to be readily absorbed by the skin. To obtain colloidal sulphur in a face lotion, dissolve a certain amount of sulphur in chemically pure carbon disulphide and then to add the solution to the face wash or lotion, with immediate conversion of the dissolved sulphur into the colloidal form.

Action of sulphur becomes really effective only when it is combined with alkali. Addition of potassium carbonate produces a powerful action. An example of a face lotion containing sulphur is the following: Five parts precipitated sulphur are mixed with eight parts 28° Be. glycerin, 3 parts 10% spirits of camphor, 17 parts perfumed water and 67 parts distilled water. Another formula calls for 2 parts precipitated sulphur, 5 parts 28° Be. glycerin, 2 parts 10% spirits of camphor, 5 to 10 parts eau de Cologne, 2 parts borax and 84 to 79 parts distilled water. Lavender extract may be used in place of eau de Cologne and in fact any other suitable perfume preparation. Addition of 2 to 4 parts ether increases the penetration.

A new product finding use in face lotions, is resorcinol monoacetate. Resorcinol is well-known for its

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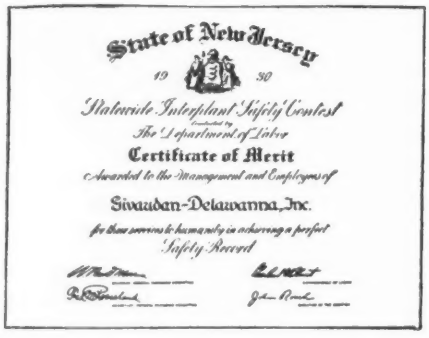
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This tribute is especially significant when one bears in mind the great volume of highly concentrated acids and alkalies handled daily at Delawanna.

AROMATIC PRODUCTS

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use in dandruff cures. The acetate derivative is used in proportion of 1 to 2 parts with 60 parts 96% alcohol, 1 to 2 parts of suitable perfume, and 37 parts distilled water. The resorcinol acetate is claimed to possess skin-cleansing and skin-rejuvenating powers and also removes the greasy appearance of the skin.

Face lotions used primarily for cleansing the skin contain only a small amount of alcohol. A formulae for such a lotion calls for half a part pure borax, 6 parts glycerin 28° Be., 30 parts 96% alcohol, 63 parts distilled water and ½ to 1 part perfume.

Another formula calls or triethanolamine in proportion of half a part in admixture with 4 parts glycerin 28° Be., 33 parts 96% alcohol, ½ to 1 part perfume and 62 parts water. The interesting substance in this formula is triethanolamine. Its use for cosmetic purposes is quite new. It is a rather viscous liquid with a slight yellowish color. It is basic in reaction and can be mixed with water, alcohol, glycerin and most solvents. It is non-inflammable. The advantage of the use of triethanolamine in face lotions is that it readily penetrates into the skin and has a cleansing action deep underneath the outer skin. Furthermore, the skin is left smooth and soft.

An interesting face lotion contains quinosol, which has a disinfecting, astrigent and healing action on the skin. It is highly useful in manufacture of shaving lotions. It is also useful in removing oils from the skin when incorporated in face lotions, particularly when the skin has a tendency towards acne. One formula for the preparation of this kind of face lotion calls for the use of 0.05 part quinosol, 45 parts 96% alcohol, 3 parts glycerin 28° Be., 1 part terpene-free lavender oil, 1 part terpene-free rosemary oil, 1/10 of 1 part artificial orange flower oil and 51 parts distilled water.

A face lotion containing camphor is made in the following manner. Thirty five parts 96% alcohol are mixed with ½ to 1 part Japanese camphor, 2 to 4 parts 28° Be. glycerin, ½ to 1 part perfume and 60 parts distilled water. When this preparation is made in the correct way, there is no danger of the camphor precipitating in flakes. The face lotion is opalescent and may at times be slightly milky in appearance.

Another face lotion containing camphor consists of 15 parts 96% alcohol, 5 parts ether, 2 parts camphor, 1 part perfume and 77 parts distilled water. The mixture is allowed to stand for 8 days, and is filtered. Face lotions, varying in appearance from strong turbidity to milky, are made by the addition of potash or borax and increasing the proportion of camphor.

The following formulae are useful in affording some idea of the substances and their proportions in some modern astringent skin lotions. One preparation calls for 64 parts alum, 32 parts zinc sulphate, 350 parts glycerin and 50,000 parts water. Another uses 76.8 parts alum 1,420 parts orange flower water and 5,000 parts rose water. A third uses 12.8 parts zinc phenolate, 72 parts glycerin, 1,420 parts rose water and 5,000 parts lilac water. Still another calls for 60 parts 96% alcohol, 2 parts glycerin of 28° Be., ½ part perfume, as far as possible of the eau de Cologne type, 1 to 3 parts 96% acetic acid, and 36 parts distilled water.

Lavandin

(Continued from page 361)

The unselected lavandin gives per hectare about five times more oil than that of the true lavender. A lavindin plantation in full production can furnish four times more flowers than the true lavender, thanks to its vigor and the formation of veritable bushes which are five times larger and more ramified than those of the true lavender. Furthermore, 80 kilograms of flowers give 1 kilogram of oil, whereas one must have 100 kilograms of flowers of true lavender to give 1 kilogram of oil.

One hectare of lavandin planted like this: in rows of 1 meter 25 centimeters apart, and in which the subjects are placed at 80 centimeters distance, would count about 10,000 plants, each able to furnish 400 grams of flowers, or 40,000 kilograms per hectare, and one can estimate the yield of oil at 40 kilograms.

Our newcomer, which we have called "Eureka," as mentioned above, furnishes 3 kilograms of oil per 100 kilograms of flowers. As it is as vigorous as the other type of lavandins, we can say that this plant can give 10 to 12 times the oil obtained from true lavender.

These are the results of our experiments, carried out meticulously during the years 1929 and 1930, in connection with a small amount of flowers. It is possible that industrially one will obtain less in the way of results, but whatever those results are, they can be expected to go beyond those attained at the present time with the lavandins in existence, insofar as quantity and quality of oil are concerned.

The foregoing experiments were carried out at Lyons, but expecially at Crest, on the property of Mr. Belle, chemist, in connection with Messrs. Abrial, of the Faculty of Medecine, Lyons, and Bruyat, pharmacist.

"Alcorub," the original rubbing alcohol produced and marketed for many years by U. S. Industrial Alcohol Co., has been taken over by Vadsco Sales Corp., 580 Fifth Ave., New York. Vadsco will continue to maintain the same quality and will place the efforts of its organization behind its distribution.

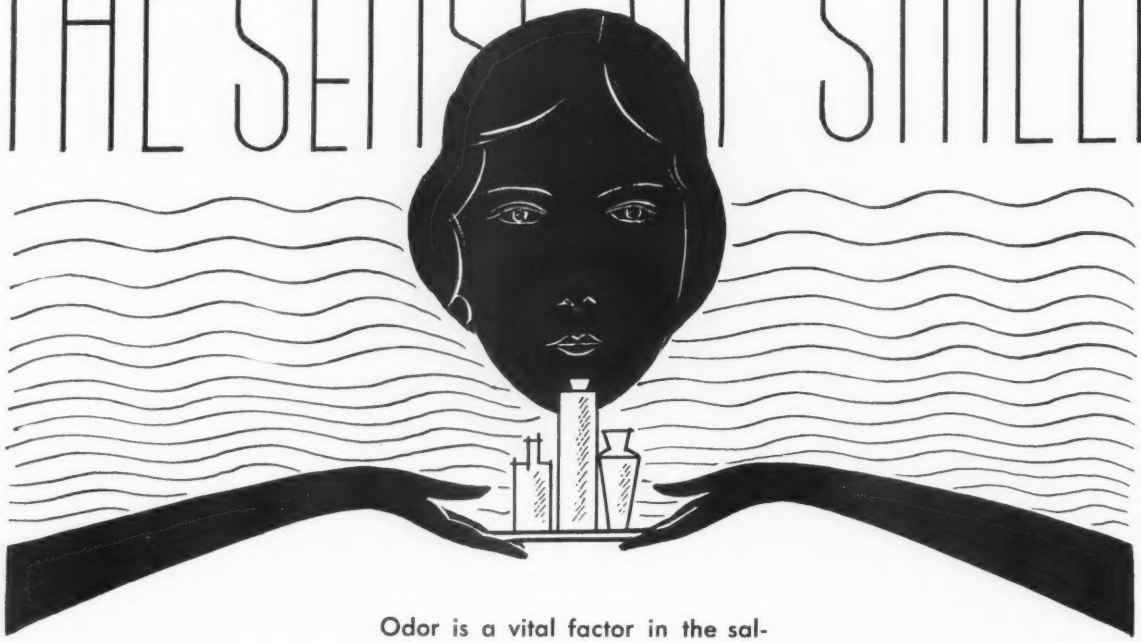
George P. Huisking, drug, oil, and spice dealer and agent, 28 Cliff st., New York, has added to his list of accounts for which he is U. S. agent, H. Van Pels & Wolff, Hamburg, Germany, shippers of tragacanth gum, herbs, spices and seeds.

Robert L. Lund, William P. Day and William C. Bird were recently elected to the Board of Directors of the Lambert Company.

McKesson & Robbins, Inc., recently elected McKay, Van Vleet and J. C. Isdahl to the Board of Directors.

Parsons & Petit, Inc., one of the oldest established chemical concerns in the country, leased offices at 7 Hanover st., New York.

THE SENSE OF SMELL



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The manufacturer of perfumes and toilet articles in his effort to promote marketability calls in experts to advise him in matters of advertising, style and appearance but is prone to overlook the most important of all the sense appeals in this connection, namely, **Odor**. This is of primary importance and requires expert attention before all the others.

Our Perfumery Research Division is prepared to help you improve the odor of your product or to develop novel and attractive odors for new items. We suggest that you place your problems before us.

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At the Chemical Show For Drug Manufacturers

Abbe's Mills and Mixers

Abbe Engineering Co. is displaying a complete line of grinding, pulverizing and mixing machinery at Booth 90. The exhibit consists of a large pebble mill in operation, equipped with a new type of valve; and small jar mills, laboratory mills, rotary cutters, attrition mills and high speed beater mills, of interest to manufacturers of drug and toilet goods.

A particular feature of this exhibit will be a new type of sifter, known as the "Blutergess," something entirely different from anything on the market at the present time.

The display of the Beach-Russ Co. consists of a combination compressor and gas booster; a combination oil pump and compressor; and a new type of pump for various pulps. They will also demonstrate a high vacuum pump exhausting on a mercury column and McLeod gauge, and an oil seal finishing pump.

The exhibit is in charge of A. T. Beach and H. F. Kleinfeltd.

Alsop's Liquid Line

Alsop Engineering Corp., New York, is exhibiting a complete line of liquid handling equipment at Booth 290. This consists of "HY-SPEED" electric mixers from 1/10 H.P. up to 20 H. P.; internal pressure filters; pressure water filters; vacuum bottle filling machine; and glass lined mxing and storage tanks.

This company is displaying for the first time a new line of asbestos disk filters in several different sizes, from a small laboratory model up to a 100 disk unit.

Samuel Alsop, Chalres E. Crowley, Walter W. Freystedt, J. A. Campbell, T. R. Turner, E. A. Knowlton, G. K. Heller, and F. Bockelman in attendance at the exhibit.

Barnstead Water Stills

Barnstead Still and Sterilizer Co., Inc., Forest Hills, Boston Mass., is featuring in its exhibit Booth 288 various new types of "Hard Water" models of "Barnstead Automatic Water Stills"; also a conductivity water still of special interest to research men who now utilize the conventional, time-wasting methods of producing "conductivity water." At least one type of "Barnstead Full-Automatic-Controlled Distilled Water System" will be included in the display. This stystem literally operates itself—automatically starting and stopping and even flushing the evaporator; and automatically ensuring an adequate reserve supply of chemically-pure distillate at all times.

Standard types of "Barnstead Automatic Water Stills," built for heating by all the safe, approved methods, will complete the exhibit. These stills will be typical of those employed by laboratories; by industrial plants that utilize distilled water as an aid to process or as an ingredient for products; by universities colleges, hospitals and other institutions; by druggists; and for storage battery service and drinking-water purposes, etc. Dr. A. J. Shadman, L. C. Pelknus, and R. Mundorf, will be in attendance.

Burt's New Labeler

Burt Machine Co., Baltimore, is exhibiting two new additions to its line at Booth 25—the model "E" Burt Labeling Machine which applies panel labels to flat and semi-circular surfaces and the model "G" casing machine for packing rectangular containers into shipping cases.

The former is a completely automatic machine receiving containers from a filler and conducting them in a straight line while the three operations of gumming, label attaching and sealing are performed in sequence at a speed of about 60 per minute on the single machine or about double that quantity on the duplex.

The case packing machine receives packages in single file from the line, assembles them into layers and pushes the latter into the shipping case which is then upended and rolls into the carton sealer. The packing of individual cartons into shipping containers now being a hand operation, this new case packer should prove of considerable interest as it provides the missing link of what otherwise would in many plants be a complete automatic line.

Carpenter Fibre Drums

Carpenter Container Co., Brooklyn, N. Y., is exhibiting at Booth 534 a complete line of "Carpenter Fibre Drums" each equipped with the "Carpenter Patented Triple Seal Closure."

Other features are a new drum to conform to I. C. C. 21-A specifications for the shipment of poisonous articles, oxidizing materials and inflammable solids; a specially treated drum for the shipment of semi-liquids and products not dry such as pulp and paste colors, satin white, refractory cement, adhesives and other materials in plastic form; a specially treated drum for greases and emulsions; a special "Hermetic Type Drum" for the shipment of products that must be kept bone dry; a new process for reproducing shippers trade-marks or brands on the complete line of Carpenter drums; a drum specially treated to hold salves, ointments, cosmetics, dental cream and shaving cream in bulk.

The exhibit will be in charge of Henry Craemer, Sales Manager, and will be attended by Wm. F. Hoffman, Warren N. Silsbe, C. A. Rich and T. P. McCloskey.

Chemicolloid's Mills

Chemicolloid Laboratories, Inc., New York, is exhibiting five new models of the "Charlotte" colloid mills at its Booth No. 418. These include all sizes, ranging from the largest mill down to the new "Charlotte Junior," which has recently been placed upon the market and which is now being exhibited for the first time.

The new "Charlotte Junior," is a small but practical colloid mill, suitable for laboratory work in industrial concerns and colleges. In construction it is patterned after the larger models and may be used successfully for the determination of future plant operations on various products, and will be found very efficient on all nature of emulsions, homogenizations, disintegrations, suspensions and extractions. It will disintegrate, extract and emulsify continuously and at one time.

George H. Rider, president of Chemicolloid Laboratories, Inc., will be in charge of the exhibit, and the full staff of chemists and chemical engineers will also be in attendance.

Colton's Latest Machines

Arthur Colton Co., Detroit, is exhibiting its full line of pharmaceutical machinery at Booth 343. The feature of this year's

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STURGE'S ENGLISH PRECIPITATED CHALK has been produced for over 50 years with remarkable results and is looked upon as a standard for Precipitated Chalk for dentifrices. The following are *the* facts:

1. Guaranteed uniform, without question.
2. U. S. P.
3. Free from grit.
4. No free Alkali.
5. Color unadulterated.
6. White in color.
7. Packed in bags, barrels and casks of uniform weights.
8. Large stocks always at your command from New York warehouse.
9. Sturge's Standard Precipitated Chalk is always made to rigidly comply with the buyer's own specifications.
10. Distinctly a manufactured Precipitated Chalk and not a by-product.

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FOR A GOOD TOOTH PASTE

exhibit is the new automatic tube filling machine, a recent development of this company which produces the new clipless closure for collapsible tubes.

Other machines on exhibition are of primary interest to manufacturers of pharmaceuticals, proprietaries, and toilet preparations. They include the No. 2 Rotary Tablet Machine, tube filling, closing and clip fastening equipment, and several small installations for tablet triturates, suppositories, etc.

R. L. Colton, president; F. X. Roellinger, secretary; Harry Addison, sales manager, pharmaceutical division; A. Kath; and Doane Hage, New York representative; will be in attendance at the exhibition.

Day's Mixing Equipment

J. H. Day Co., Cincinnati, is displaying its complete line of mixing equipment at Booth 76. Among the items in this line on exhibition are a heavy duty mixer, vacuum type, for dehydration and solvent recovery; a dry powder mixer and blender; a heavy duty whipper and emulsifier; a semi-liquid mixer, pony type; a tooth paste or cold cream mill; a colloid mill, Hurrel type; and a small size pony mixer.

Those in attendance at this display are B. P. Wallace; W. Grant; and E. H. Schiller.

Industrial Chemical's Chalk and Carbon

Industrial Chemical Sales Co., Inc., New York, is centering its display at Booth 88 about the activated carbon, "Nuchar," for filtering, purifying, decolorizing and deodorizing. Related purification products such as "Diafilt," activated bleaching clays, and Fuller's earth are also on display.

Of particular interest to tooth paste manufacturers is the display of the company's "Snow Top" brand of precipitated chalk.

Joseph Wrench, Joseph M. Wafer and E. A. Sigworth are in attendance at the exhibit.

Kiefer's New Machines

Karl Kiefer Machine Co., Cincinnati, is featuring three new machines at Booth 24. This marks the first appearance of all three at this particular show, while for two of them it marks the first public display of any kind.

The first is the new automatic "Rotary Bottle Washer & Blower" connected directly to one of the company's filling machines. This machine automatically and thoroughly cleans by the use of compressed air. Also on display is the new high speed "Impacta Visco Filling Machine" for filling creams and similar products—a completely automatic unit with inlet and discharge conveyor. The third is the new "Tube Filling and Closing Machine" which does not require clips.

E. E. Finch, A. J. Sterling, J. D. Picaza, S. C. Cross, and J. Eckhoff are in attendance at this exhibit.

Kay-Fries' Synthetic Organics

Kay-Fries Chemicals, Inc., New York, is displaying its complete line of synthetic organic chemicals used as raw materials for pharmaceuticals, toilet goods, cosmetics, insecticides, etc., at Booth 493. These include aromatic chemicals, solvents, plasticizers, denaturants and insecticides.

Those in attendance at the company's exhibit are E. H. Watson, G. W. Dyne, S. Florsheim, A. M. Lindenfelser, and J. T. Ames.

O. & J. Labelers

O. & J. Labeling Machine Co., Worcester, Mass., is exhibiting its latest models of both automatic and semi-automatic labeling machines at its Booth No. 254.

Both types of machines are arranged for demonstration runs and any one interested in the labeling of any type of package will find it to his advantage to investigate the exhibit.

G. M. Chapman and H. R. Bafetti are in attendance at this booth.

Pfaltz & Bauer's Specialties

Pfaltz & Bauer, Inc., New York, at Booth 268, is featuring a line of imported specialties of particular interest to manufacturers of drugs, toilet goods and cosmetics. These include the "Golden Fleece" Lanoline; "Falba" Absorption Base for cosmetics; various grades of chlorophyll and saponine; and a complete line of C. P., medicinal, and technical chemicals manufactured by J. D. Riedel-E. de Haen A. G., including "Fixanal."

Included also in the display are ultra-filters made by Membranfilter G.m.b.H., in actual operation; Wulff pH tester; Sartorius analytical balances and weights and microtomes; and a Spindler & Hoyer new type viscosimeter and micro-pyrometer.

F. M. Bauer, Kurt Walwer, L. F. Eiklor, C. W. Rawson, and E. Davidson are in attendance.

Pfaudler Tanks and Mixers

Pfaudler Co., Rochester, N. Y., manufacturer of glass lined chemical process equipment, is exhibiting a new 500 gallon all-steel glass lined reaction kettle. This unit may be used as a still, chlorinator, nitrator, etc. With the omission of the top head, it may also be used for sulphonating operations. This is the largest standard glass lined unit of this kind.

Another new feature of the display at Booth 73, will be an epicyclic mixer which is designed for mixing a variety of pharmaceutical and mild chemical products.

Completing the equipment display will be a 60-gallon steam jacketed open evaporating pan, a two and a five gallon experimental still, a small, single shell, low-priced storage tank, glass lined agitators, pipes, and fittings.

A new innovation will be a large chart at the back of the booth which will show exactly how glass lined equipment is used in the chemical and pharmaceutical industries.

Pfizer's Citrates

Charles Pfizer & Co., New York, is featuring its fine chemical line at Booth 38. Chief among these is the company's citric acid and citrates and gluconic acid and gluconates. A staff of competent chemists will be in attendance to describe and discuss characteristics and uses of these materials which are of particular interest to drug and pharmaceutical manufacturers.

A. A. Teeter, J. J. Powers, and E. C. Otto are in charge of the display.

Pneumatic's Capping Machine

Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass., is showing a filling and a capping machine in which are embodied improvements of rather radical nature.

The vacuum filling machine is their standard "Samco Junior" embodying many new improvements. The construction is novel for the reason that it is an all metal machine, rubber connections having been entirely eliminated.

For the first time the new "Standard Single Head Capping Machine" will be on view. Visitors interested in the application of the standard screw caps, particularly those with the modern delicate finishes, will witness a demonstration of how these caps can be automatically fed, without the slightest possible chance of marring in anyway the beauty of the cap finish or design. New parts are involved, not only in applying the cap, but a much higher degree of flexibility has been employed in applying the desired tension, so that in turning on the cap to the tightest possible tension, there is no danger of marring.

Pneumatic Scale's exhibit will be at Booth 310 and H. A. Shaw, A. T. Buskens, L. F. Blackwell and W. E. Coughlin will be in attendance.

Premier Colloid Mills

Premier Mill Corp., Geneva, N. Y., is exhibiting several types from among its different colloid mills models at Booth 330. Twelve different kinds and sizes of mills have been developed by this company to satisfy capacity and type of material required. Dispersing surfaces are supplied in a variety of metals, alloys and other materials to meet the demands of the occasion. Careful

CONCENTRATED EDUCATION *in* Drugs

To know what the drug market is going to do, you must know the factors which affect it. You can see for yourself what these factors are by visiting the coming Exposition of Chemical Industries.

The equipment which affects the cost of producing and using drugs; new materials which may stimulate or retard the use of others; new uses for drugs old and new; improved containers and packages which affect the salability of products; tools, instruments and supplies which influence practice among users and producers of drugs—these are but a few of the items that will be exhibited at Grand Central Palace, New York, the Chemical Capitol of the World, during the first week in May.

Don't miss the opportunity to absorb this concentrated education in important phases of your own business.

Come and bring your associates.

13th Exposition CHEMICAL INDUSTRIES

Management, International Exposition Company

designing has obviated the need of pumps, packing glands, complicated rotors, hollow shafts, or more than one motor.

"Premier Colloid Mills" are used for the manufacture of emulsions, ointments, toilet creams, tooth pastes, and many other varieties of pharmaceutical products. A new laboratory model is being exhibited which has all of the qualifications of the larger size models including the same accuracy of adjustment and dependable speed

Pulverizing Machines

Pulverizing Machinery Co., New York, is featuring its "Mikro-Pulverizer" at Booth 263. This machine pulverizes without separators, collectors or screens. It is particularly adapted for preparing crude drugs for percolation and for mixing and blending pharmaceuticals, cosmetics, and tooth pastes. The company will also exhibit its patented feed screw control and numerous samples of material ground by this machine.

Those in attendance at the exhibit are C. D. Burtenshaw, C. W. Ruprecht, A. L. Stern, F. E. Oswald and G. A. Ronn.

Richardson Weighers

Richardson Scale Co., Clifton, N. J., at Booth 283, is exhibiting the "Richardson Convey-o-Weigh," for feeding and weighing bulky materials. Other features are a compound bin, chute and gate and a weighing and sack filling scale which weighs six to seven bags per minute within one-half pound accuracy.

F. J. Stokes' Exhibit

F. J. Stokes Machine Co., Philadelphia, is featuring at Booth 77 a "Full Automatic No. 90-C Tube Filling Machine" in operation packaging a shaving cream. Other exhibits at this booth are a large size single punch tablet machine of special interest to pharmaceutical manufacturers; a new automatic water still for hospitals and research laboratories which produces sterile distilled water said to be purer than that made by double distillation with equipment heretofore offered for this purpose; a welded steel vacuum shelf dryer; a small condenser and the new "Stokes High Vacuum Pump."

John A. Silver, Lawrence H. Bailey, C. F. Coleman, J. C. Coleman, and L. C. Cooley are in attendance at this exhibit.

Stokes & Smith's Packagers

Stokes & Smith Co., Philadelphia, is featuring its "Universal" filling machine at its exhibit in Booth 267. This unit is in wide use among drug and toilet goods manufacturers There is also on display a number of the widely diversified packages and containers which are being handled by this company's packaging and filling machines.

An added feature will be an exhibition of moulded products under the name of "Durite Plastics", a division of the Stokes & Smith Co. Those in attendance at the booth are Messrs. Maxfield, Schaeffer, Smith, Novotny, Cary and Buedingen.

Travis Colloid Mill

Travis Colloid Research Co., Inc., New York, is exhibiting the small portable colloid mill which has been developed by this company. This unit can be attached to the lighting circuit and used for experimental work and light commercial production. The mill is a low-priced unit, thoroughly tested under various operating conditions, and involves the latest features in design and construction of a complete portable colloid mill.

This exhibit is at Booth 253 with E. N. Fitzsimons in charge.

Triangle's Powder Filler

Triangle Package Machinery Co., Chicago, is exhibiting a new and improved "Auger Packer" for the handling of powders in amounts ranging from 1-oz. up to 5-lbs. The particular features of this machine are, extreme flexibility, simplicity in design, accuracy in weight, and high speed.

We will also exhibit our Automatic Measuring Machine which is a new departure in handling small amounts of dry materials at high speed, with assured accuracy in weights. It will handle from ½-oz. up to 2 or 3 oz., delivering 40 to 50 packages per minute. It is very simple to adjust for varying amounts. Booth 508.

U. S. Bottlers' Liquid Line

U. S. Bottlers Machinery Co., Inc., Chicago, is exhibiting its complete line of bottling equipment at Booth 265. Featured at this display are the "U. S. Rotary Bottle Washer and Sterilizer"; the "U. S. Combination Outfit No. 6" for filtering liquids; "U. S. Model 'B' Hand Vacuum Filler"—one of the small vacuum units manufactured by this company; and "U. S. Single Head Capping Machine" with attachments for standard metal caps and for moulded caps.

Those in attendance at this exhibit are A. H. Ross, P. W. Kuhn, L. L. De Vries and George A. Craig.

U. S. Colloid Mills

U. S. Colloid Mill Corp., Long Island City, N. Y., is featuring a new line of single rotor mills at Booth 545. This new "SR" line is particularly well adapted for pharmaceuticals, creams, cosmetics, ointments and waxes since it is a slow speed unit, generating no heat while running. Accurate control of rate of feed, no foaming or air inclusion, and easy and thorough cleaning, are the advanced features of this new modern line of colloid mills.

Another feature of this exhibit is the first showing of the new high-speed double rotor line of mills. This line is of primary interest to the drug trade in the manufacture of emulsions and represents a complete redesigning of U. S. Colloid's standard line of mills to include the modern improvements previously mentioned.

The line represents a new departure in colloid mill construction, is extremely rugged in nature, and comprises all sizes from junior laboratory to heavy duty—from five gallons to 1,000 gallons per hour capacity. The exhibit will be in charge of M. P. Hoffman.

U. S. Stoneware's Mixers

U. S. Stoneware Co., New York, is featuring a new sanitary tumble mixer at Booth 46. This is an electric mixer operating upon the revolving barrel principle. Other items on display are: ball mills with chemical stoneware barrels offered in relatively large sizes for grinding powders, etc.; centrifugal acid pumps, lined with chemical stoneware, offered in entirely new design and for the first time in a new smaller size; laboratory jar mills for grinding and pulverizing; laboratory sinks; quick-setting acid-proof cements; laboratory chlorine cells; H_2S gas generators; lubricated valves and faucets of chemical stoneware; and spiral packing blocks.

F. S. Wills, T. S. Wills, E. F. Tucker, J. M. W. Chamberlain, and S. H. Farkas are in attendance at the exhibit.

Drug Markets' Catalog

Drug Markets is at Booth 430 exhibiting "Drug Markets Catalog & Directory" for the first time. This marks the first public display of this volume which has been eagerly awaited by the trade because it supplies a long felt need for a catalog and reference book distinctly and exclusively for the drug manufacturing industry, including manufacturers of pharmaceuticals, proprietary medicines, toilet preparations and flavors.

This book is a 450 page volume handsomely bound in fabrikoid with a page size 9 by 12 inches. It is divided into seven sections as follows: Machinery and Equipment; Containers and Closures; Chemicals and Raw Materials; Essential Oils, Aromatics and Flavoring Materials; Botanical Drugs; Associations and Councils; and Prices and Imports.

This book is distinctly valuable to drug and toilet goods manufacturers generally and especially to those executives in charge of purchasing production and technical control. It is on sale for the first time at the exposition where it may be secured, together with a subscription to Drug Markets.

New Patents Reveal---

(Continued from page 356)

is tested and standardized, by dilution or by concentration in vacuo at low temperatures, according to results of test. I. G. Farbenindustrie A. G., Frankfort-on-Main, Germany. B. P. No. 339,943, filed September 10, 1929.

GERMAN PATENTS

Therapeutic Oil Solutions

Process relates to preparation of therapeutically active oil solutions containing insoluble or difficultly soluble liquids. These substances are dissolved in benzyl alcohol before being added to the oil. They may also be added to a mixture of benzyl alcohol and oil. The dissolving process is aided by means of certain substances, such as urethanes, which facilitate solvent powers of the solvent for other substances. Chemisch-Pharmazeutische A. G. Bad Homburg, Bad Homburg, Germany. G. P. No. 501,502, filed December 12, 1926.

Therapeutic Extracts

Process is concerned with preparation of extracts used in manufacture of therapeutic substances and also for increasing vitamin content of foodstuffs. Radicles of germinated cereals, obtained in malting process and alcoholic extracts prepared from corn, are extracted, after removal of alcohol, with aid of fat-dissolving medium. The latter is then driven out. Matro G.m.b.H., Heilbronn am. M., Germany. G. P. No. 501,844, filed July 14, 1927.

Tubercular Prophylactic and Therapeutic Compounds

True tubercular bacilli from manuals of the humanus and bovinus types are cultivated in or on nutrient media with addition of bacterial poisons in concentrations, in which they do not prevent growth of bacteria. Bacterial cultures are then transmitted to nutrient media free from poisons or containing only a small amount. Then cultures, having been further developed, are worked up in entirety or in combination with bacilli grown on bacterial-poisonous nutrient media, in usual manner, after being killed, and converted into therapeutically active preparations. I. G. Farbenindustrie A. G., Frankfort-on-Main, Germany. G. P. No. 501,693, filed August 22, 1924.

Stable Supersaturated Calcium Gluconate

Concentrated calcium gluconate solutions, to which other therapeutically valuable, soluble substances are added, are filled hot into evaporator and heated for so long a period until formation of crystals no longer takes place. Chemische Fabrik vormals Sandoz, Basel, Switzerland. G. P. No. 503,423, filed October 30, 1928.

Alkaloids Volatile in Steam

Process pertains to preparation of alkaloids volatile in steam, especially nicotine. A mash of alkaloid-containing plant parts, prepared with aqueous solutions of alkali hydroxides or alkaline-reacting salts, is distilled with steam. The amount of alkali-reacting compounds contained in mash, is at least twice and advantageously as high as ten or more times the weight of that actually required to set free the alkaloid. It is also possible to use neutral salts, such as sodium chloride, in place of excess alkali or in addition thereto. Dr. George Knoth, Hamburg, Germany. G. P. No. 500,998, filed June 27, 1929.

Hydrogenation of Thebaine

Thebaine is hydrogenated under conditions which enhance foymation of tetrahydrothebaine. Certain catalysts, for example, platinum oxide, are used. Hydrogenation is thus accomplished at room temperature. Process must be carried out with suitable hydrogen ion concentrations in presence of organic solvents, such as methanol, acetic anhydride, glacial acetic acid, etc. The mass obtained (which contains the tetrahydrothebaine) is trated with mildly de-catalyzing substances, such as hydrochloric acid. C. H. Boehringer Sohn, Nieder Ingleheim am Rhein, Germany. G. P. No. 503,924, filed February 16, 1927.

Adhesive Preparations for Plasters

These preparations possess high adhesive powers and do not dry out. In addition thereto, constituents do not irritate the skin. Compounds of the alkali earths or earth metals with abietic acid, for example calcium resinate, aluminum resinate and the like, are used. Furthermore organic phosphorous compounds of waxy, fatty or oily nature, particularly of lecithin and its compounds, are also added. Louis Ritz & Co., Hamburg, Germany. G. P. No. 503,624, filed February 16, 1927.

Acid Reacting Colloidal Tooth Paste

Base of tooth paste is colloidal substance with absorbent action on films that coat teeth. Thus colloidal proteins, such as beta-glutin, can be used in admixture with a polishing agent consisting of an inorganic colloid or of acid salts. Atkieselskabet Si-Ko Technische-Chemische Fabrik, Oslo, Norway. G. P. No. 503,626, filed April 7, 1926.

Thickener for Hair Dyes

This is a vegetable mucilage which increases viscosity of hair dye or hair bleach, but does not glue hair together when preparation dries out. On other hand it becomes crumbly and can be easily removed. Agar-agar or carraghen dispersions can be used. I. F. Schwarzlose Soehne G.m.b.H., Berlin, Germany. G. P. No. 503,627, filed October 1, 1927.

New Stock Bottle Line

Announcement by the Owens-Illinois Glass Co., Toledo, that it will shortly be in a position to supply a new line of containers from stock molds, is expected to prove highly interesting to manufacturers of toiletries, cosmetics, pharmaceuticals, and proprietaries.

These bottles will be made at lighter weights and with sharper outlines than the more ordinary machine made bottles and will have much of the distinctiveness associated with bottles made by hand. The designs adapt themselves readily to attractive labeling and permit the free use of the popular types of molded closures which seat themselves close to the shoulder lines. The jars are unusual, yet of pleasing and practical shapes and they, too, are adapted to types of closures which go to make up a thoroughly modern toiletry cream package.

For the first time it will be possible for a manufacturer desiring a container of somewhat unsusal appearance to buy from stock molds sizes from ½ to 8 oz., and at the same time to obtain molded or other suitable closures from stock designs at a substantially lower cost than he has paid for similar hand blown containers.

Reich Ash Corp., and its subsidiary companies, Silvercraft Specialty Co., Inc., Antique Novelty Box Co., Inc., and Greene Metal Novelty Corp., have leased for twenty-one years a nine story loft building at Degraw st. and Tiffany Place, Brooklyn, N. Y. Floor space of building is over 90,000 square feet and involves a deal of $750,000. This is said to give Reich Ash Corp. and its subsidiaries, the largest factory for the manufacture of cosmetics and novelties in the world.

FOR MODERN LIQUID PROCESSING

Hy-Speed PASTE MIXER

HOT PROCESS

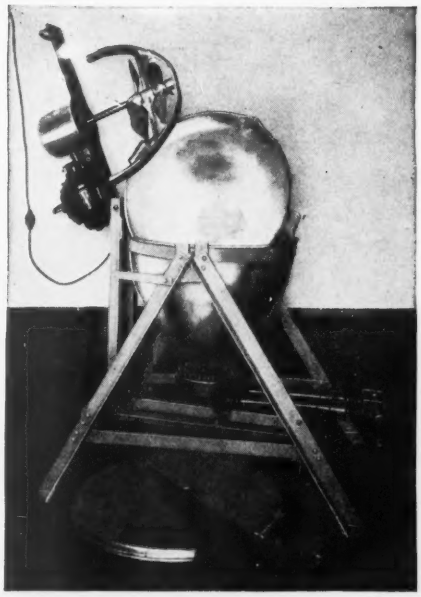
FEATURES: Eliminates installation expense, steam boilers, double-jacketed kettles . . . Portable . . . Low in initial cost . . . Inexpensive to operate.

The new "Hy-Speed" hot process Paste Mixer is especially designed for mixing face creams, vanishing creams, ointments and all semi-liquids of a pasty consistency which require processing under heat.

The product is processed in a removable bowl of heavily-tinned copper, which fits into a larger bowl suspended over a gas-burner of ample size. A liquid bath of water, oil, or glycerin surrounding the inner bowl acts as a heat-transmitting medium in direct contact with the gas-burner flame. Heated to an even, correct temperature, the contents cannot scorch or burn.

This double-bowl construction eliminates the necessity for installing steam boilers to heat expensive double-jacketed kettles.

The inner bowl may be removed after processing and left to cool while a duplicate bowl is being mixed, saving valuable time.



The "Hy-Speed" Hot-Process Paste Mixer. Note removable inner bowl, two-piece cover.

SPECIFICATIONS

The small driving propellers are operated at a speed of 110 r.p.m. through the medium of double-reduction gears, making it possible to mix contents of any thickness with a ⅓ h. p. motor. The large revolving baffles operate at a speed varying with the thickness of the mixture. This feature allows the use of a small motor . . . operating from any lighting circuit outlet, in place of the large motors formerly required. The saving in current cost is an important item.

Agitator blades are of bronze heavily tinned. The monel-metal shaft which drives the blades runs on ball-bearings which seldom require oil. Baffles and propellers lift out of the tank into a position where they may be quickly and easily cleaned for processing other products.

The frame is of unbreakable angle steel, light enough to make the mixer readily portable and strong enough to make it practically unbreakable. A two-piece cover is supplied which can be placed over the tank while operating. Either section may be removed easily to inspect or to add ingredients.

ECONOMICAL

The advanced principles of construction used in this recent addition to the "Hy-Speed" line enable us to produce it at a price less than half that of any machine which will do the same work, and it eliminates installation expense and costly steam fittings. Specify type of electricity when ordering.

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Here was a product which had to be filled . . . on a production basis . . . into small aluminum tubes at an exact temperature. Our machine not only solved this problem,—the Norwich Pharmacal Company says, "with entire satisfaction,"—but the savings* made by the patented clip-making feature alone more than paid the one operator's wages.

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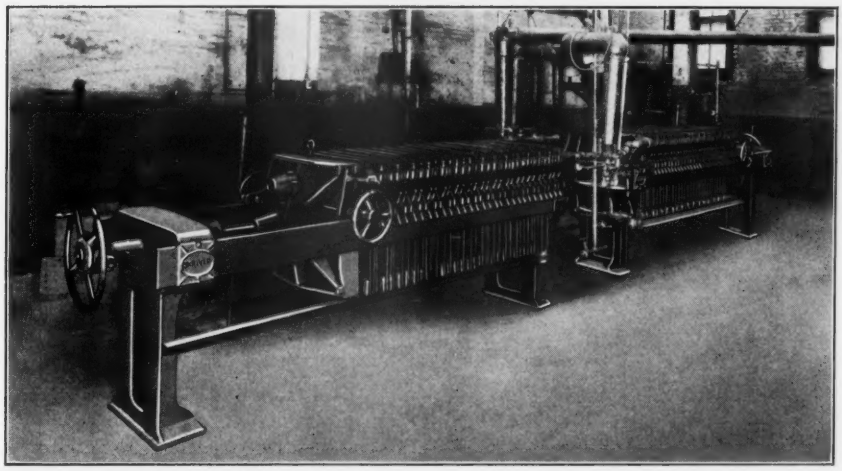


Filtering cod liver oil in plant of E. R. Squibb & Sons

Filters and Filter Media

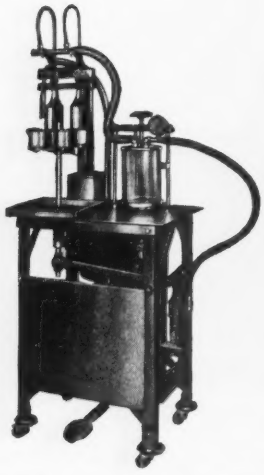
The problem of filtration enters into the preparation of a very large percentage of drugs and toiletries. Many types of filters, each more suitable to specific tasks, make certain knowledge essential for intelligent selection.

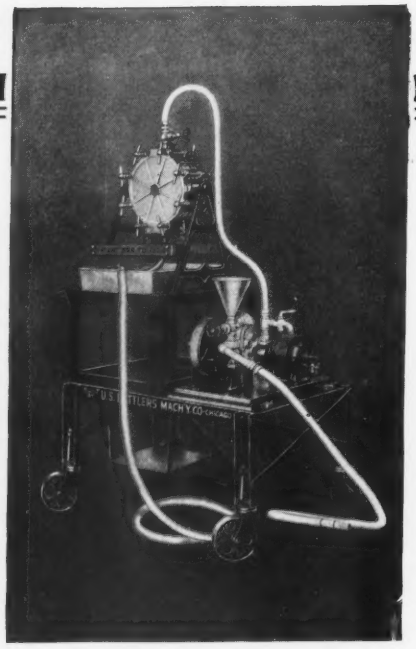
THE difficult problem of filtration is common to every liquid handling industry. Probably no other operation is more important; certainly none is more difficult. On the efficacy of this operation depends the appearance of the finished product. The difficulties of filtration are complicated because so many factors are involved, any one of which may compel special methods of handling, special media, and even a change in equipment.

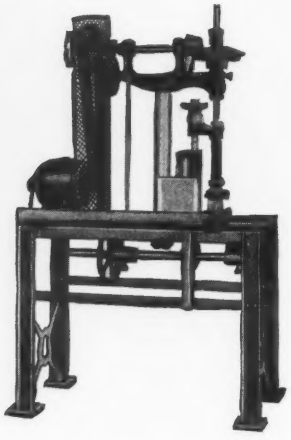
Filtration might be called the "sifting" of liquids. But, unfortunately, it is far from being the simple process that dry sifting is. A sieve of a given mesh will separate dry materials of almost every character; the nature of the material having but little influence on the sieving medium or the type of machine. Whereas, in filtration the product determines the media, the method of handling, and, to a certain extent, the type of filter also.

Production of clear, brilliant liquids may be divided into three phases: Straining, by means of which coarser particles of suspended material are removed; filtering, the process of removing practically all remaining solids; and, finally, clarification or polishing, which accomplishes removal of impalpable solids that pass through many of the finest filter media. These impalpable solids cause a cloudy appearance, which in some instances is accentuated by flocculent material that forms in the filtrate upon standing. Other materials will become cloudy when subjected to lower temperatures owing to formation of minute crystals of wax or filaments of gummy slime.

If the preparation is to be merchandised in flint bottles, a clear sparkling appearance adds materially to its appeal. But it is the polishing phase of filtration that gives production men the most trouble. If clarity and brilliancy could be dispensed with, filtration would indeed be little more difficult than sifting. Straining causes no trouble, nor does the mechanical performance of filtering itself, excepting in those cases where an impenetrable scum forms on the filter bed and clogs it. It is precisely to secure brilliancy that various kinds of filter media and aids are used.







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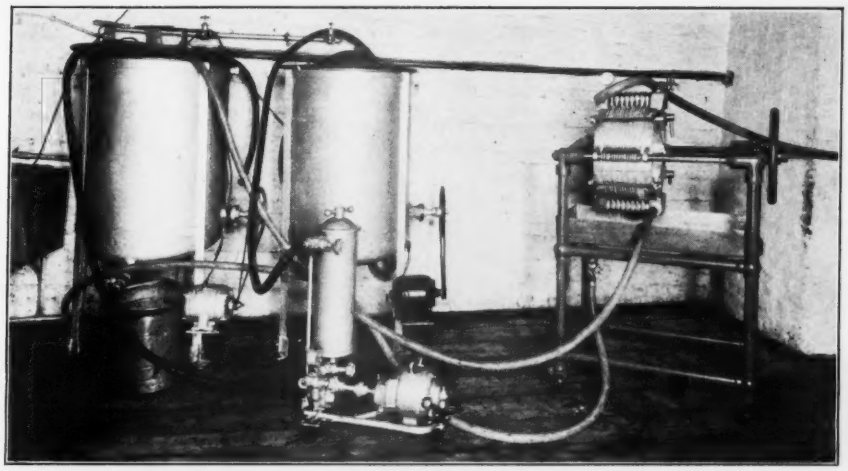
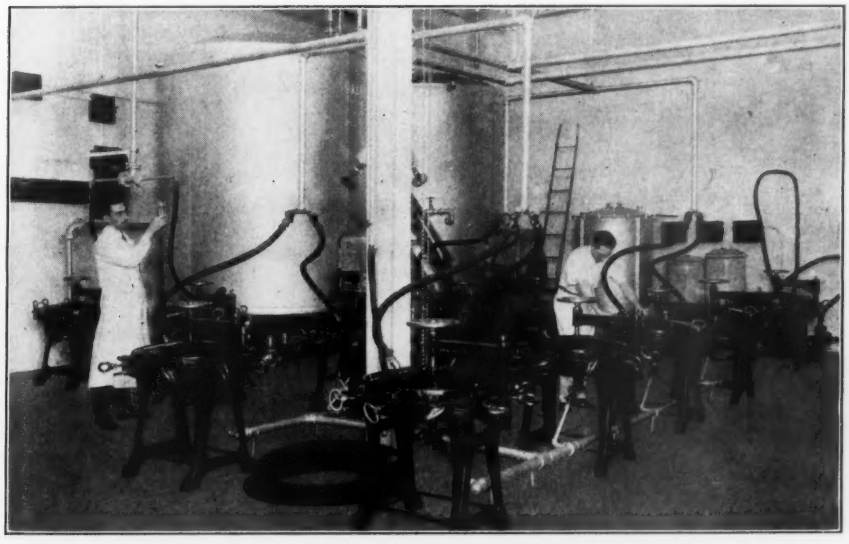


Installation showing pressure and disc filter for water, and pressure filter for finished products

The whole problem of filtration, therefore, resolves itself, with certain reservations that will be outlined later, into a hunt for just the right combination of filter medium and filter aid to polish a given combination of chemicals. Practically every combination of chemicals presents a different filtering problem. For this reason it is impossible to establish classifications of liquids, that could be clarified by the use of definite combinations of filter media and filter aids in specific types of equipment. Rough classifications, according to character of liquid (that is its viscosity) such as water bases, alcohol bases, syrups, light oils, heavy oils, emulsions, etc., are of no value without corollary classifications of the nature of the suspended solids. For example, water containing carbon or sand will filter very rapidly through almost every media. Change the sand or carbon to pectin, starch, or calcium carbonate and you have a "hoss of a different color." These classifications could be projected in still another direction to provide for the percentage of each kind of solid in suspension. In order of cussedness, therefore, the factors governing the selection of filter media, filter aids;—and to a certain extent the filter, are: the nature and quantity of suspended solids, the viscosity of the basic liquid (and also its chemical nature); and, finally, the volume of clarified filtrate required in a given time. Of the various solid materials it might be said, that those of a gummy or slimy character cause the most trouble because it takes but a small quantity of them to clog the filter beds and prevent further filtration. This compels a cessation of operations until the filter is opened and its beds cleaned. For large scale operation, however, a plate and frame filter has been developed with provision for flushing or sluicing the beds or leaves without opening the filter.

As previously mentioned, some liquids which are perfectly brilliant after filtration, will become cloudy on exposure to lower temperatures. This problem can be met for most materials by lowering the temperature of the liquid before filtering to a point as low as it is likely to encounter on the open market. But since this requires refrigeration apparatus, the procedure is too costly for the small manufacturer. In large scale operation, however, plate and frame filters with hollow plates for the circulation of brine are available.



Filters in plant of Canada Dry Ginger Ale

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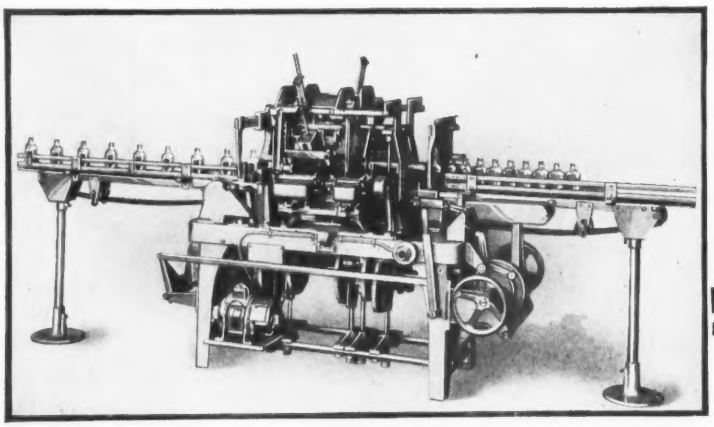


Front and back labeled precisely in single operation.

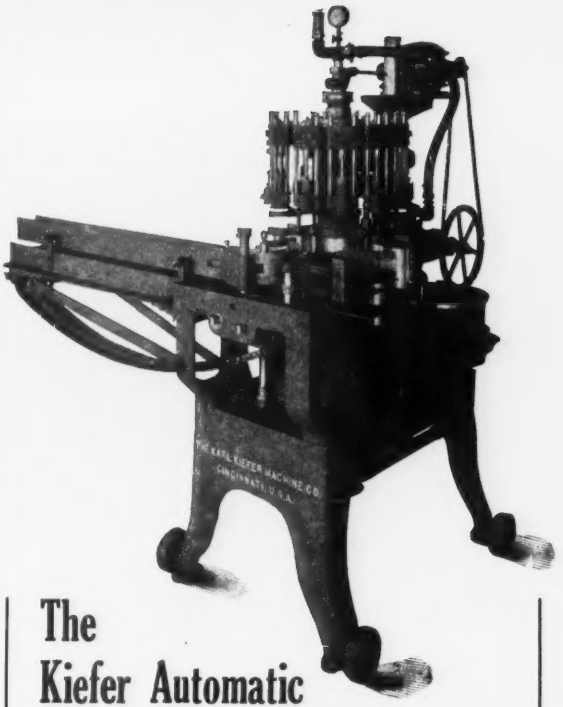
But some materials require heating and flocculation with an agent like albumin or gelatin. These materials will coagulate and enclose the offending solids so that their removal is made easy—in many cases merely by skimming. Other materials such as gelatin contain albuminous matter and, therefore, only require heating. Acids are sometimes clarified by the use of milk. And there are products (comparatively rare, thank heaven!), which require the addition of a reagent before cloudiness can be eliminated—those containing tannins for example.

Materials such as honey and many common gums may be filtered very readily when their viscosity has been lowered materially by means of heat. When the product is very viscuous and cannot be heated nor forced through any kind of pressure filter, centrifugal filtration will usually accomplish the desired clarification.

Successful filtration can be achieved only by trial and error testing. The nature of the material will sometimes give a clue to a desirable combination of filter media and filter aid; but thorough testing under plant conditions is the only sure means of keeping out of trouble. All filter manufacturers maintain testing laboratories for this purpose, and some of them will rent experimental apparatus so that the tests can be conducted on the ground.

If there is anything which approaches the ideal in filter media it is asbestos. For most proprietaries, cough syrups, liniments, lotions and the like it can be used alone in the form of sheets. Better results are achieved in many instances, however, by using a mixture of asbestos wool, and fullers earth or glass wool on a bed of French filter paper. On the market there is an excellent medium compounded of asbestos and other materials, presumably some of the clays. Filter media can be had in a wide range of materials: filter paper, felt, asbestos cloth, wire cloth, twill, linen, camels hair, china grass, silk, mohair, and certain types of skin resembling chamois. In addition to these, other media in a divided state are widely employed: paper pulp, cotton, asbestos wool, glass wool, kaolin, fullers earth, purified talc, sand, kieselguhr, etc.; and also several excellent compounded products such as silica-gel and filter-cel. When it is necessary to decolorize or deodorize at the same time, a variety of material may be mixed with the product before filtering, such as activated carbons, bentonite, activated alumina, etc.

When it is necessary to use a filter aid in addition to the medium, sound practice dictates mixing in water ten to twenty pounds of it per square inch of filtering area. A small quantity of the aid should be added to the product itself and also mixed. By running the filter aid mixture through first, a film of the aid will be deposited over every part of the filter beds. When the product is then pumped in, it will run clear from the beginning, and the time usually spent



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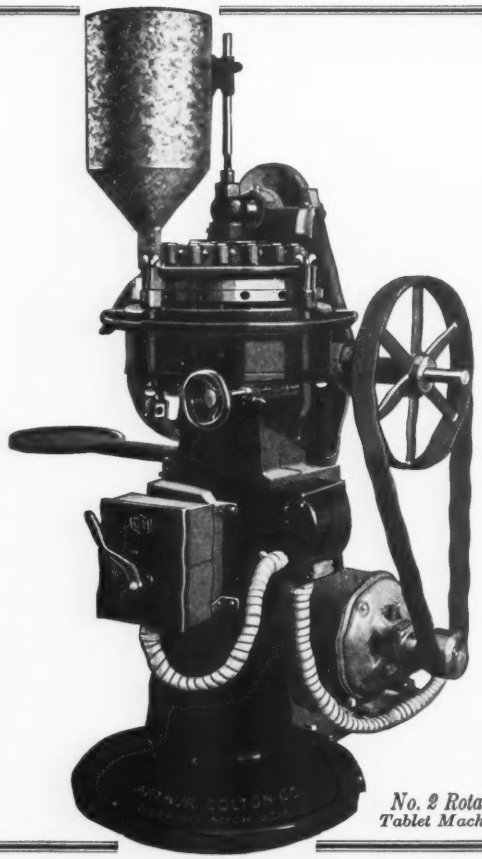

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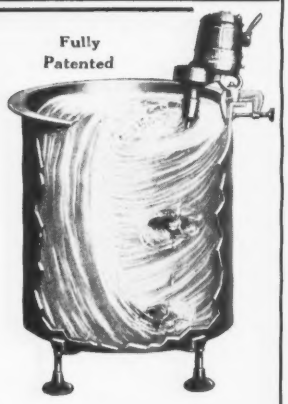

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waiting for the filtrate to clear up will be saved; and the entire process materially quickened.

If a general rule for successful filtering could be stated it is this: eliminate the bulk of the suspended solids by preliminary straining or settling.

The type of filter used has less to do with the actual filtration than the selection of the proper media; most of the differences between types of equipment hinging on considerations of filtering area, capacity, cost, floor space, design, ease of cleaning etc. All filters may be classified thus: gravity, pressure, suction and centrifugal.

Gravity filters are cheapest in price as a general rule, and cost least to operate. But they are limited to the low viscosity liquids containing a relatively small quantity of suspended solids. Many of them cannot be used for volatile liquids because their slow operation causes too great evaporation loss. As a class they are restricted because of their limited capacity.

Pressure filters are more widely used than any other types and are available in an almost unlimited variety of designs. They can be divided into two classes: disk filters and plate and frame filters (or filter presses as they are erroneously called). In principle there is but little difference between the two classes but in design and operation they are utterly different. Many people believe that a filter press is used only when the solid material constitutes the bulk of the product and it is desired to press the liquid out of the solid. This function belongs to the hydraulic or screw press. It is, of course, true that plate and frame filters are used extensively for building up filter cakes, but in practically every instance where they are so used, the percentage of solid to liquid is relatively small—often as low as ten per cent. Whereas presses are used when solids are present in percentages as high as ninety.

Plate and frame filters are used when a great area is required to provide for an enormous volume of liquid. They can be used effectively for any large scale straining, filtering or clarifying operation. Their chief difference from disk filters is that generally they are constructed to operate under higher pressure. Special plate and frame filters have been constructed to withstand as much as 500 pounds to the square inch of filtering surface.

For general use disk filters are superior to plate and frame filters because of their extreme adaptibility to a wide range of products and flexible capacity. They are, moreover, easy to clean and require little floor space. There are two distinct types of disk filter: the vertical and the horizontal. Their capacity can be increased or decreased as requirements dictate by merely adding or eliminating extra disks.

The tank pressure filter is extremely adaptable for filtering a variety of products. In general they consist of a tank in which is affixed a screen covered with a suitable medium. The liquid is pumped in and forced through the filter medium, and the clear filtrate continuously drawn off and pumped to storage tanks.

The suction filters draw the clear filtrate through the medium and continuously return it to the mixing tank or into storage tanks if it is clear enough. The advantage of this type lies in the fact for small operation the batch can be mixed in the tank which forms part of the set up.

Centrifugal filters are useful for a wide range of filtrations. In this type of filter the importance of filter media is minimized because the tremendous centrifugal force set up *throws* the suspended solid out. For viscuous products that cannot be clarified in either a disk or plate and frame filter they are extremely effective.

It is well in conclusion to re-emphasize the necessity for preliminary straining to remove the bulk of the solids. The capacity and length of continuous run is directly dependent upon the amount of solids to be removed. If there is a great deal present, the area between disks or plates will become filled up very quickly and necessitate cleaning before the operation can be resumed.

Small Colloid Mill

In response to the repeated demand for a small, but practical laboratory model Charlotte Colloid Mill, Chemicolloid Laboratories, 44 Whitehall St., New York, have designed and produced a new model, which is known as the Charlotte Junior.

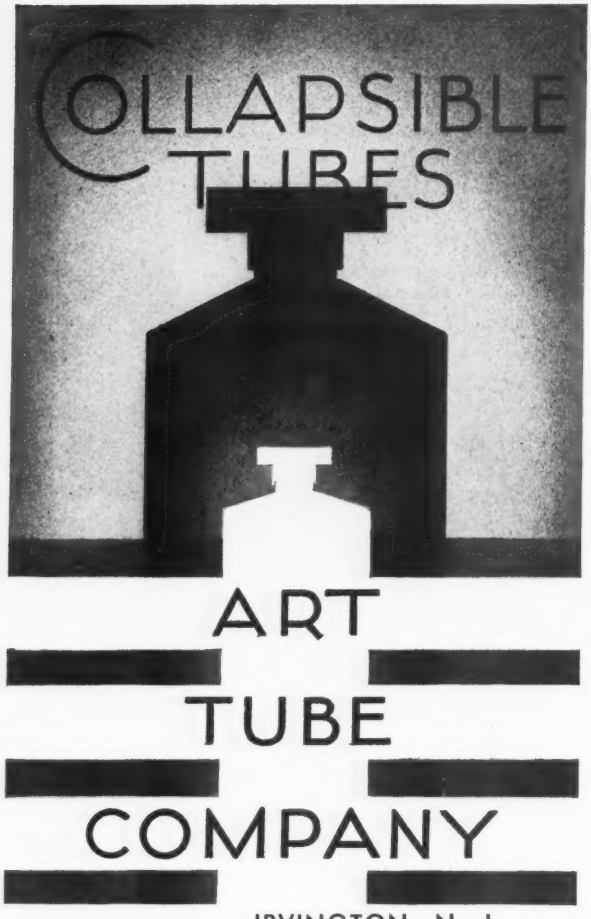
Patterned after the larger models, it necessarily embodies all of the features of the commercial sizes. It has been built to meet the great need of the laboratories of industrial concerns, and also with some idea as to the requirements of the various colleges, which are rapidly taking up the teaching of the commercial and industrial aspects of colloid chemistry. It may be used successfully for the determination of future plant operations on various products, and will be found very efficient on all nature of emulsions, homogenizations, disintegrations, suspensions and extractions. In short, it will do three things at once; disintegrate, extract and emulsify continuously. A perfect blending of all the ingredients may thus be secured by the use of this mill.

Volume of production on this new and popular size permits a selling price much lower than hitherto possible, at no sacrifice of the rigid constructional requirements.

Givaudan-Delawanna Inc., New York, are offering a new product, Novo-Rose, a low priced rose perfume oil suitable for all cosmetic preparations, without fear of incompatibilities or discoloration, particularly in the case of creams and powders. Novo-Rose is said to be complete, having necessary fixatives to insure proper tenacity and retaining of its refreshing character even after drying.

E. Fougera & Co., has leased the eleventh floor in the Holland Plaza Building at Varick and Canal sts. for an aggregate sum of about $1,750,000 for the twenty-year term. E. Fougera & Co. had been located for about eighty-two years in the Maiden Lane district.

Roger Plachon, of Plachon Bourguet, Marseilles, France, dealers in drugs, spices and oils, recently arrived on the S.S. Paris and is making his headquarters at the office of W. Benbert & Co., New York.



ART
TUBE
COMPANY

IRVINGTON, N. J.

. . . working away . . .
busily . . . happily . . . knowing that our contented customers appreciate us . . . and that each new month . . . will bring new friends . . . into our business circle.

A Government Pharmacopoeia?

(Continued from page 334)

comply with the food and drugs act, as do other kinds of drug preparations.

The act itself provides that if a preparation is sold under a name known or recognized it must conform to the standards of purity, quality and strength laid down in the law which sets up the U. S. P. standard. If a proprietary preparation professes to be of a certain standard and then departs from that standard, there is said to be a violation of law. If the manufacturer says his preparation contains a certain ingredient or a certain quantity of that ingredient, then the ingredient must be there as stated. This is the trade view.

Under the law, a drug preparation is misbranded if its label bears any statement that is false or misleading. It is adulterated if it professes a standard and then falls below that standard.

But the mere fact that an article used in making a drug preparation is mentioned in the Pharmacopoeia does not, in trade opinion, require all of that article to meet U. S. P. standards, for some of it may not be used for drug purposes and some may be used in proprietary preparations which do not have to meet U. S. P. requirements.

Permissible Tonics

(Continued from page 336)

organs that were unwarranted, is finding today a poor sale for them. If they will label their tonics and other preparations moderately, clearly, truthfully and specify proper dosage, they are not going to be required to change their labels, regardless of what the attitude of enforcement officials happens to be.

"The manufacturers are then getting on clear, firm, permanent ground, and can go ahead with advertising and merchandising, and carrying things through straight to success without any interruption. It is on long-continued, repeating orders for products that the manufacturer makes money, and he has come to recognize this principle as essential in merchandising his products."

United Sues Penick and Hillier

United Chemical & Drug Corp., Bridgeport, Conn., has filed suits in the Common Pleas Court in Jersey City and the U. S. District Court at Newark seeking damages aggregating $150,000 as a result of the alleged sale of assets of R. Hillier's Son Co., Inc., to S. B. Penick & Co.

The first suit was filed in the Federal Court and is for $50,000. It is directed against the Jersey City Drug Sales, successor to R. Hillier's Son Co., Inc.

The other action through which $100,000 damages are sought was filed in the Hudson County Court of Common Pleas and is against S. Barksdale Penick of Montclair, his company, S. B. Penick & Co., Inc., and Isaac V. S. and Richard V. S. Hillier, both of Westfield, N. J.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of Drug Markets, published monthly at Pittsfield, Mass., for April 1, 1931.

State of New York, County of New York—ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Thomas R. Farrell, who, having been duly sworn according to law, deposes and says that he is the Editor of the Drug Markets, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Drug Markets, Inc. 101 West 31 St., New York, N. Y.; Editor, Thomas R. Farrell, 101 West 31 St., New York, N. Y.; Managing Editor, none; Business Manager, Frazer V. Sinclair, 101 West 31 St. New York, N. Y.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent. or more of the total amount of stock should be given.) Drug Markets, Inc., Frazer V. Sinclair, Thomas R. Farrell.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent. or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given, also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

Thomas R. Farrell, Editor.

Sworn to and subscribed before me this 6th day of October, 1930, James G. Coleman, Notary Public, Kings Co., Clerk's No. 677, Reg. No. 1327, N. Y. Co., Clerk's No. 619, Reg. No. 1C433. Commission expires March 30, 1933.

(Seal)

Philip O. Schleussner, first vice-president and director of the Roessler & Hasslacher Chemical Co., died Saturday, March 21, at Stamford, Conn. He was stricken in November with bronchial pneumonia and never returned to business.

Mr. Schleussner was born in Brooklyn, N. Y., Sept. 6, 1878; was educated in public schools and after a few years in the textile industry joined Heyden Chemical Works, later leaving to take charge of the platinum department of Roessler & Hasslacher.

Fennimore Cooper Marsh, president of the Baker Castor Oil Co., died April 1 of pneumonia at his home, 600 West 110th st., New York. He was eithgy-two years of age. Funeral services were held April 3 from the Campbell Funeral Church. Burial will be in Kansas City, Mo. Surviving him are his son, Kendall Marsh, vice-president of the company; a grandson, two brothers, and three sisters.

Producers of 126 different materials have come to Stokes & Smith for help in their package problems—and found the solution to their difficulties. This wealth of experience is at your disposal—without obligation. Write us today.

STOKES & SMITH CO.

Package Filling, Sealing and Weighing Machines

Tight-Wrapping Machines, Envelope Sealers

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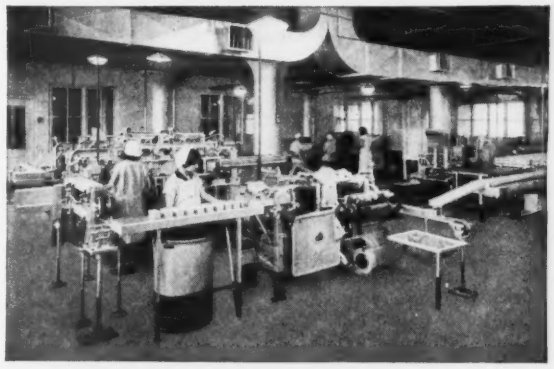


A section of Bristol-Myers' wrapping department. The wax-wrapping machine in the foreground encloses the cartons in waxed paper, and the packages are then fed into the bundling machine, operated by the girl at the extreme left of the picture.

How BRISTOL-MYERS cut Packing Costs

Bristol-Myers wrapping department furnishes an interesting example of how wrapping machinery can help to meet a trade condition *economically*.

In recent years retail druggists have shown a decided preference for small-lot purchases, making it necessary to pack goods in dozen and half-dozen lots. Under these circumstances, the old method of packing the goods in display boxes proved expensive.

With the introduction of one of our bundling machines, which wraps a dozen or half-dozen packages in strong kraft paper, the Bristol-Myers Company *effected an immediate saving of 46%*. Orders for more machines followed in quick succession, and now this Company operates a battery of our machines to bundle Ipana, Sal Hepatica and Ingram's Shaving Cream (both tubes and jars).

Today our bundling machinery is recognized as "standard equipment" in the drug manufacturing field.

This is but one example of the various wrapping tasks performed by Package Machinery machines. No matter what the nature of your wrapping problem may be, bring it to us—*solving problems built our business.*

PACKAGE MACHINERY COMPANY
Springfield, Massachusetts
New York Chicago Los Angeles
London: Baker Perkins, Ltd.

PACKAGE MACHINERY COMPANY
Over 150 Million Packages per day are wrapped on our Machines

Drug Stock Prices Off

Prices of common stocks of drugs and cosmetics companies' after showing only slight variations through March, dropped eight points from the previous week in the week ending April 1. This is still five points above the year's low which was recorded the first week in January. Prices of common stocks of 337 miscellaneous industrials showed a similar trend. Detailed figures follow:—

1926 Average equals 100

	Drugs and Cosmetics	*337 Industrials*
Mar. 4	128.4	110.7
11	130.8	110.7
18	133.1	112.7
25	133.8	112.9
Apr. 1	125.9	105.5
1931 High	133.8	114.7
Low	120.6	102.3
1930 High	174.7	174.1
Low	115.8	98.2

McKesson & Robbins Earns Less

McKesson & Robbins, Inc., reports net sales of $134,865,440 for year ended Dec. 31, 1930. This total represents a drop of $9,831,873, or 6.8 per cent. compared with sales reported for 1929.

While net profit for 1930 showed a decline from 1929, the report states that "operations so far this year (1931) would indicate that the present dividend rate of $1 per annum on the common is being earned and it will be the company's present policy to continue to pay the dividend if earned."

The company's laboratories, President F. Donald Coster said, working in conjunction with outside laboratories, clinics and members of the medical profession, have made exceptional progress in development of new products useful in treatment of anemia and cancer, as well as developing new processes in the isolation and concentration of Vitamins A and D, and in the production of new and most powerful non-toxic germicides.

The detailed consolidated income account for 1930 showed net profit of $3,469,715, after all expenses, and depreciation charges. After crediting other income, and deducting fixed charges and Federal tax reserves, the net profit for the year was $2,629,196.

Consolidated profit for 1930 was equal to 3.42 times the annual interest charges on the outstanding debentures, and after deducting the latter, the balance was equal to 1.68 times dividend requirements on the 7 per cent. convertible preference stock, and to 96 cents a share earned on the 1,082,542 common shares after dividends paid on minority interest in subsidiaries.

In 1929 the company earned $2.18 a share on the common stock.

Abbott Business Gains

Abbott Laboratories dividend checks were mailed March 31, for the first quarter of 1931, at the regular rate of 62½ cents per share.

In a letter to the stockholders accompanying the dividend checks, a statement is made by J. F. Stiles, Jr., Treasurer, that the volume and profits for January and February of this year exceed the same months of 1930 and that the sales for March also exceed March of last year.

The Kohler Manufacturing Co., proprietary medicines, Baltimore, has acquired title to the property at 15 East Lombard st., where it has had its place of business for years.

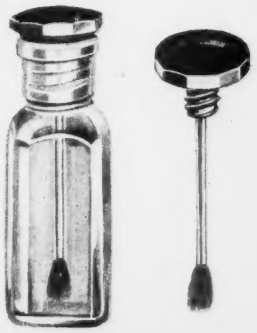
Vitalis has been sold to Bristol-Myers Co., subsidiary of Drug Incorporated, and since April 1st, the product has been manufactured and sold entirely by the new owners. Additional advertising and sales support will be applied during the current year to this fast growing product.

Harold B. Thomas, who has been in charge of Vitalis sales and advertising under Lewis Brothers ownership, is associated with the sales department of Bristol-Myers Co. in promoting sale of Vitalis.

Chesborough Manufacturing Co. report for the year ended Dec. 31, net profit after taxes and charges, of $1,415,877, equal to $11.79 a share on the outstanding stock, compared with $1,586,597, or $13.22 a share in 1929.

Drug Industry Stocks

1931 Mar. 31 Bid	Asked	1931 High	Low	Annual Rate	
		NEW YORK STOCK EXCHANGE			
123¼	123½	129¾	106¼	5.00	American Can
149½	150½	150¼	145		pfd
8⅛	8¼	14⅜	8⅛		American Com'l Alcohol
59⅜	61	64	47⅜		American Home Products
2⅜	2¾	4⅛	2⅜		American Solvents & Chem. Co.
6½	7⅞	11⅛	6⅜		pfd
46½	47⅛	50⅜	47	2.50	Colgate-Palmolive-Peet Com
102¾	103½	104½	102	6.00	6% pfd
6	6½	8⅜	5		Container Corp. Class A
2¼	2⅜	3	1⅞		Container Corp. Class B
11⅛	11¾	18	8⅛		Coty, Inc
72½	73	78⅛	61½	4.00	Drug Incorporated
82	82¾	87⅛	77⅜	8.00	Lambert Co
31	32	34½	24	3.00	Lehn & Fink
12½	13	17	11¾	1.00	McKesson & Robbins Com
32	32½	37⅜	31	3.50	pfd
23¼	26½	26½	20	1.25	Monsanto Chemical Co
33¼	35	39⅜	33¼		Owens-Illinois Glass Co
35	...	35½	23	1.00	People's Drug Store
19	19¼	21	12		Sharp & Dohme
60	61	59⅜	53½		Sharp & Dohme, pfd
43	43½	77⅜	43⅛	6.00	U. S. Ind. Alc
...	...	...	...		pfd
1	1⅛	2	⅜		Vadsco Sales
		NEW YORK CURB			
110	120	125	110	4.50	Ches. Mfg. Co
¼	⅜	1	¾		David Drug Stores Allot. Ctfs
3	3⅜	3½	1⅜		Helena Rubenstein
10	13½	13	11		Heyden Chemical Corp
...	...	7⅜	6⅜		International Perfume Com
...	...	71	67		$6 Cum. pfd
102½	105	113¾	77	4.00	Mead-Johnson
⅜	⅞	1	⅜		Nauheim Pharmacies Com
1⅜	2½	2¼	1⅜		pfd
14½	16½	42	12		Newport Co. Com
37⅜	39	40	29	3.00	Northam Warren Corp. Pfd
28	29	30⅜	28		Parke, Davis & Co
9⅞	10⅜	11⅜	4		Stein Cosmetics, Com
6⅜	6⅞	7	5	.40	Vick Financial Corp
24½	24⅝	29½	16¼		Walgreen Co., Com
12⅜	12⅞	15⅛	8	1.00	Zonite Products Corp
		CLEVELAND			
50	50	50⅜	45		Dow Chemical Co
101¼	101¼	105¼	101⅛		pfd
22	22	32⅛	22		Miller Wholesale Drug Com
13⅞	13⅞	15½	12		Weinberger Drug Com
		CHICAGO			
39	39½	38⅞	35		Abbott Laboratories
23½	24½	25½	16¼		Katz Drug Co., Com
⅜	⅝	⅜	⅜		Lane Drug Co. Com. VTC
¼	½	15	¼		Cum. pfd
		CINCINNATI			
13	13½	14	9⅛		Dow Drug Co
...	...	107	100		pfd
...	...	...	...		Standard Drug A
		BALTIMORE			
31	32	32½	31		Emerson's Bromo Seltzer
		UNLISTED			
...	...	...	...		Heyden Chemical Corp. pfd
74	78	...	...	8.00	Merck pfd
...	...	...	...		Noxzema Chem. Co
...	...	...	...		Squibb Com
...	...	...	...		pfd



You can have a beautiful package with an applicator rod. Send for a sample of the new one-piece applicator rod in a sample bottle. Applicators and seals all of glass, in one piece; or, if you prefer, Bakelite or Durez stoppers with glass rods inserted in them. Attractive colors are available in Bakelite and Durez.

THE PERFECT SEAL and RESEAL

ESPECIALLY FOR DIFFICULT TO SEAL PRODUCTS

The inside screw thread seal is now available in attractive designs. Stoppers of Porcelain, of Bakelite and Durez in many attractive colors, of glass or rubber for certain special products, meet every packaging need both for appearance and for perfect sealing.

Severe laboratory tests have proved the Spring Stopper closure a perfect seal and reseal. Its appearance is attractive, its use a real convenience. These seals, with or without applicator rod, screw into a thread formed on the inside neck of the bottle.

Be sure to visit our interesting exhibit at the 13th Exposition of Chemical Industries, May 4th-9th at the Grand Central Palace, New York City.

Bottles of any size or shape are made as readily with inside screw thread, as are bottles with an ordinary finish.

May we send samples of seals or applicator rods? Please state the nature of your product so that proper liners may be furnished.

Spring Stopper Co.

165 Broadway, New York, N. Y.

Telephone COrtlandt 7-1495-1496-1497

Patentee of bottle finishing devices applied to the various types of automatic bottle making machines. Patents in United States, Canada and Foreign Countries.

A NEW and DIFFERENT REFERENCE BOOK

Now Ready for You

Drug Markets Catalog and Directory is not just a directory. A technical and commercial digest, together with a directory of principal suppliers, is given for more than two thousand chemicals and raw materials and for the machinery, equipment, containers and packaging materials used by the manufacturing drug trade.

READ OUR OFFER **for a book which will be of everyday use in the purchasing department, the laboratory, the plant department of manufacturers of pharmaceuticals, proprietary medicines, toilet preparations, cosmetics and flavoring extracts!**

- A beautifully bound book of 450 pages, 9 by 12 inches in size, containing more than 60,000 facts, of daily reference use in purchasing, production and technical control. For each product, more than 2,500 listed, a complete and carefully edited directory.
- Condensed catalog pages, giving you detailed facts about specific products, conveniently grouped for easy reference.
- Technical and commercial digest, with directory, grouped in sections for quick reference.
- The most complete glossary of chemical and raw material synonyms ever compiled and published.
- A statistical section showing price ranges, ten-year import values and amounts, etc.

These manufacturers and suppliers publish in Drug Markets Catalog and Directory their condensed catalogs for your convenience:—

Abbe Inc., Paul O.
Abbe Engineering Co.
Abbott Laboratories
Alsop Engineering Co.
Aluminum Seal Co.
American Commercial Alcohol Corp.
Baker & Bro., H. J.
Barrett Co., The
Beach-Russ Co.
Bond Manufacturing Corp.
Bush & Co., Inc., W. J.
California Fruit Growers Exchange
Carpenter Container Corp.
Chaleyer, Inc., Ph
Chemicolloid Laboratories, Inc.
Chiris Co., Antoine
Commercial Solvents Corp.
Crown Cork & Seal Co.
Dodge & Olcott Co.
Dow Chemical Co.
Dreyer Inc., P. R.
Empire Metal Cap Co.
Felton Chemical Co., Inc.
Fougera & Co., Inc., E.
Frank-Vliet Co., Inc.
French, Inc., Benjamin
Fries & Co., George
Fritzsche Brothers, Inc.
General Felt Products, Inc.
Givaudan-Delawanna, Inc.
Glascote Co.
Glass Products Co.
Glyco Products Co.
Gomez & Sloan, Inc.
Hamilton, A. K.
Heyden Chemical Corp.
Hoffmann-LaRoche, Inc.
Hopkins & Co., J. L.
Horix Manufacturing Co.
Huisking & Co., Chas. L.
Hunkins-Willis Lime & Cement Co.
Imperial Metal Mfg. Co.
Industrial Chemical Sales Co., Inc.
Irvington Varnish & Insulator Co.
Ivers-Lee Co.
Jones & Co., R. A.
Kay-Fries Chemicals, Inc.
Kimble Glass Co.
King & Howe, Inc.
Kuhne-Libby Co.
Leonhard Wax Co., Theodor
Lueders & Co., George
Magnus, Mabee & Reynard, Inc.
Mallinckrodt Chemical Works
Mathieson Alkali Works
McDonald Engineering Co.
McIlvaine Bros., Inc.
McKesson & Robbins, Inc
Merck & Co., Inc.
Metal Package Corp
Mixing Equipment Co., Inc.
Monsanto Chemical Works
Morgan & Co, Clarence
Newport Chemical Works, Inc.
N. Y. Quinine & Chemical Works
Orbis Products Trading Co.
Owens-Illinois Glass Co
Package Machinery Co.
Parento, Inc., Compagnie
Parsons, M. W.
Peek & Velsor, Inc.
Penick & Co., S. B.
Pfaltz & Bauer, Inc.
Pfaudler Co
Pfizer & Co., Inc., Chas.
Pneumatic Scale Corp., Ltd.
Polak's Frutal Works, Inc.
Popper & Klein
Powell & Co., Inc., John
Rossville Commercial Alcohol Corp.
Schering Corporation
Schliemann Companies, Inc.
Schwabacher & Co., S.
Seil, Putt & Rusby, Inc.
Sherwood Petroleum Co.
Silver Import Co., George
Sonneborn & Son, Inc., L.
Spring Stopper Co.
Stanco Distributors, Inc.
Standard Insulation Co
Stokes Machine Co., F. J.
Stokes & Smith Co.
Thurston & Braidich
Todd Co., A. M.
Ungerer & Co.
United Chemical & Drug Corp.
U. S. Industrial Alcohol Co.
van Ameringen-Haebler, Inc.
Wangler-Budd Co., Inc.
White Metal Manufacturing Co.
Williams Sealing Corp.
Wilson Laboratories
Wirz, Inc., A. H.

This offer is open only to purchasing, production departments, laboratories of manufacturers of pharmaceuticals, proprietary medicines, toilet preparations, cosmetics and flavoring extracts.

Drug Markets, Inc., 101 West 31st St., New York City.

Gentlemen: I accept your special offer of the 1931 Edition of Drug Markets Catalog and Directory, postage free, with one year's subscription to DRUG MARKETS at $3.00. I understand that if I am not satisfied I can return this book within ten days and my money will be refunded.

Name .....

Address .....

City .....

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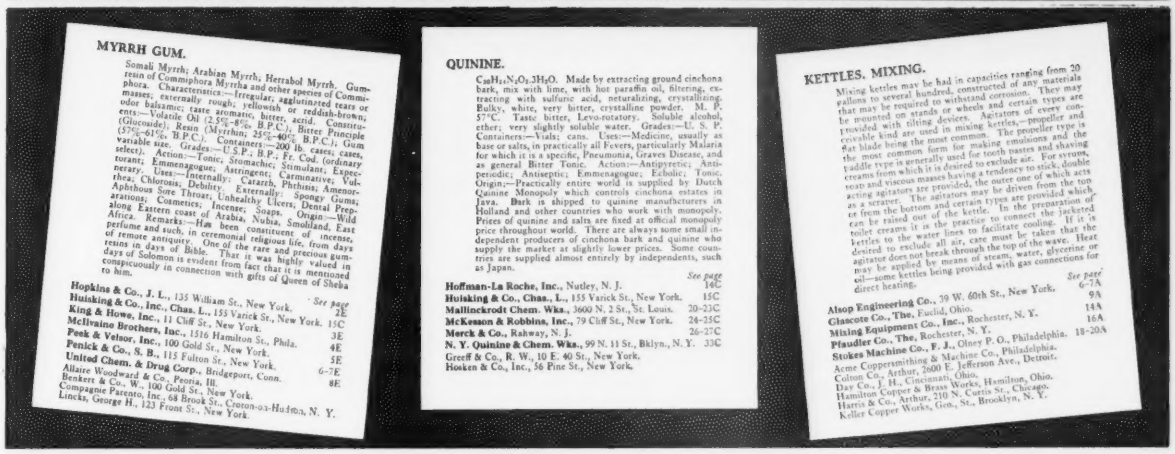
Purchasing ..... Production ..... Laboratory .....

Pharmaceuticals ..... Proprietary Medicines .....

Toilet Preparations ..... Flavoring Extracts .....

--- See Cover 2 ---



MYRRH GUM.

Somali Myrrh; Arabian Myrrh; Herrabol Myrrh. Gum-resin of Commiphora Myrrha and other species of Commiphora. Characteristics:—Irregular; agglutinated tears or masses; externally rough; yellowish or reddish-brown; odor balsamic; taste aromatic, bitter, acrid. Constituents:—Volatile Oil (2.5%–8%, B.P.C.); Resin (Myrrhin; 25%–40%, B.P.C.); Bitter Principle (57%–61%, B.P.C.). Containers:—200 lb. cases; cases, variable size. Grades:—U.S.P.; B.P.; Fr. Cod. (ordinary; select). Action:—Tonic, Stomachic; Stimulant; Expectorant; Emmenagogue; Astringent; Carminative; Vulnerary. Uses:—Internally: Catarrh, Phthisis; Amenorrhea; Chlorosis; Debility. Externally: Spongy Gums; Aphthous Sore Throat; Unhealthy Ulcers, Dental Preparations; Cosmetics; Incense; Soaps. Origin:—Wild along Eastern coast of Arabia, Nubia, Smoldland, East Africa. Remarks:—Has been constituent of incense, perfume and torch, in ceremonial religious life, from days of remote antiquity. One of the rare and precious gum-resins in days of Bible. That it was highly valued in days of Solomon is evident from fact that it is mentioned conspicuously in connection with gifts of Queen of Sheba to him.

Hopkins & Co., J. L., 135 William St., New York. *See page* 2E
Huisking & Co., Inc., Chas. L., 155 Varick St., New York. 15C
King & Howe, Inc., 11 Cliff St., New York.
McIlvaine Brothers, Inc., 1516 Hamilton St., Phila. 3E
Peek & Velsor, Inc., 100 Gold St., New York. 4E
Penick & Co., S. B., 115 Fulton St., New York. 5E
United Chem. & Drug Corp., Bridgeport, Conn. 6–7E
Allaire Woodward & Co., Peoria, Ill. 8E
Benkert & Co., W., 100 Gold St., New York.
Compagnie Parento, Inc., 68 Brook St., Croton-on-Hudson, N. Y.
Lincks, George H., 123 Front St., New York.

QUININE.

$C_{20}H_{24}N_2O_2.3H_2O$. Made by extracting ground cinchona bark, mix with lime, with hot paraffin oil, filtering, extracting with sulfuric acid, neturalizing, crystallizing. Bulky, white, very bitter, crystalline powder. M. P. 57°C. Taste bitter, Levo-rotatory. Soluble alcohol, ether; very slightly soluble water. Grades:—U. S. P. Containers:—Vials; cans. Uses:—Medicine, usually as base or salts, in practically all Fevers, particularly Malaria for which it is a specific, Pneumonia, Graves Disease, and as general Bitter Tonic. Action:—Antipyretic; Antiperiodic; Antiseptic; Emmenagogue; Echolic; Tonic. Origin:—Practically entire world is supplied by Dutch Quinine Monopoly which controls cinchona estates in Java. Bark is shipped to quinine manufacturers in Holland and other countries who work with monopoly. Prices of quinine and salts are fixed at official monopoly price throughout world. There are always some small independent producers of cinchona bark and quinine who supply the market at slightly lower prices. Some countries are supplied almost entirely by independents, such as Japan.

See page
Hoffman-La Roche, Inc., Nutley, N. J. 14C
Huisking & Co., Chas., L., 155 Varick St., New York. 15C
Mallinckrodt Chem. Wks., 3600 N. 2 St., St. Louis. 20-23C
McKesson & Robbins, Inc., 79 Cliff St., New York. 24-25C
Merck & Co., Rahway, N. J. 26-27C
N. Y. Quinine & Chem. Wks., 99 N. 11 St., Bklyn., N. Y. 33C
Greeff & Co., R. W., 10 E. 40 St., New York.
Hosken & Co., Inc., 56 Pine St., New York.

KETTLES, MIXING.

Mixing kettles may be had in capacities ranging from 20 gallons to several hundred, constructed of any materials that may be required to withstand corrosion. They may be mounted on stands or wheels and certain types are provided with tilting devices. Agitators of every conceivable kind are used in mixing kettles,—propeller and flat blade being the most common. The propeller type is the most common form for making emulsions and the paddle type is generally used for tooth pastes and shaving creams from which it is desired to exclude air. For syrups, seats and viscous masses having a tendency to stick, double acting agitators are provided, the outer one of which acts as a scraper. The agitators may be driven from the top or from the bottom and certain types are provided which can be raised out of the kettle. In the preparation of toilet creams it is the practice to connect the jacketed kettles to the water lines to facilitate cooling. If it is desired to exclude all air, care must be taken that the agitator does not break through the top of the wave. Heat may be applied by means of steam, water, glycerine or oil—some kettles being provided with gas connections for direct heating.

See page
Alsop Engineering Co., 39 W. 60th St., New York. 6-7A
Glascote Co., The, Euclid, Ohio. 9A
Mixing Equipment Co., Inc., Rochester, N. Y. 14A
Pfaudler Co., The, Rochester, N. Y. 16A
Stokes Machine Co., F. J., Olney P. O., Philadelphia. 18-20A
Acme Coppersmithing & Machine Co., Philadelphia.
Colton Co., Arthur, 2600 E. Jefferson Ave., Detroit.
Day Co., J. H., Cincinnati, Ohio.
Hamilton Copper & Brass Works, Hamilton, Ohio.
Harris & Co., Arthur, 210 N. Curtis St., Chicago.
Keller Copper Works, Gen., St., Brooklyn, N. Y.

CHEMICALS AND RAW MATERIALS

A technical and commercial digest, giving formulae, chemical characteristics, valuable and useful technical and commercial information about more than 800 chemicals and raw materials in commercial use in this country. With each listing and digest, a complete, carefully edited directory of principal suppliers.

ESSENTIAL OILS AROMATIC CHEMICALS

A technical and commercial digest of more than 600 essential oils and aromatic chemicals. For natural products, complete data on commercial constituents, uses, habitat, seasons for gathering, etc. For aromatic chemicals, formulae, chemical characteristics, uses, etc. A complete, carefully edited directory for each product.

FLAVORS

The first detailed classification and directory of flavoring materials published. Includes flavors of all types, grouped by natural or chemical classifications and by uses. For each classification, a complete and carefully edited directory of principal suppliers.

BOTANICAL DRUGS and SPICES

For more than 600 crude drugs and spices in commercial use in the United States, a complete digest giving chemical data, habitat, uses, crop season and detailed commercial information, much of which has never before been compiled and published. A complete, carefully edited directory of principal suppliers for each product.

MACHINERY and EQUIPMENT

The equipment used in manufacturing pharmaceuticals, proprietary medicines, cosmetics and toilet preparations. A detailed description of types and models available, uses and other data both for the experienced plant manager and the small manufacturer. With each listing a complete directory of principal manufacturers.

PACKAGING and SHIPPING

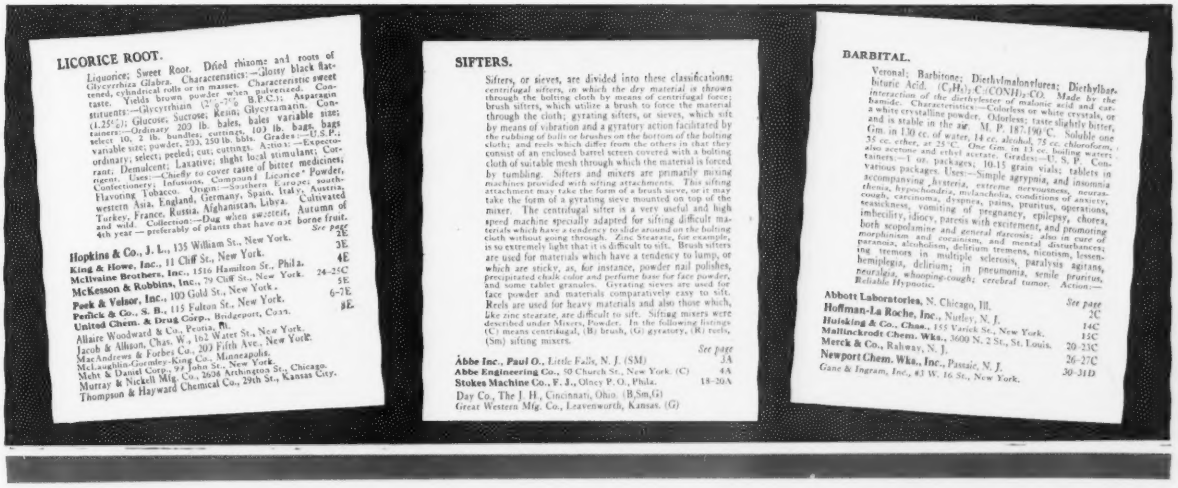
All of the materials used in packaging and shipping pharmaceuticals, proprietary medicines, toilet preparations and cosmetics, including collapsible tubes, glassware, closures, liners, boxes, etc., with useful descriptive data. For each product, a directory of manufacturers.

STATISTICS

A section showing import prices and quantities by years for a ten-year period; a range of back prices for over 2,000 chemicals, raw materials, essential oils, flavors, aromatic chemicals, crude drugs; a glossary of synonyms for all these products, listing more than 30,000 common names, and other data.

CONDENSED CATALOGS

A very valuable reference section which makes convenient, always available to you, the condensed catalogs of 103 manufacturers, importers and suppliers who are equipped to be of service to manufacturers of pharmaceuticals, proprietary medicines, cosmetics, toilet preparations, flavoring extracts, etc.



LICORICE ROOT.

Liquorice; Sweet Root. Dried rhizome and roots of Glycyrrhiza Glabra. Characteristics:—Glossy black flattened, cylindrical rolls or in masses. Characteristic sweet taste. Yields brown powder when pulverized. Constituents:—Glycyrrhizin (2%–7% B.P.C.); Asparagin; Glucose; Sucrose; Resin; Glycyramatin. Containers:—Ordinary: 200 lb. bales, bales variable sizes; select 10, 2 lb. bundles; cuttings, 100 lb. bags, bags variable size; powder, 250, 250 lb. bbls. Grades:—U.S.P.; ordinary; select; peeled; cut; cuttings. Action:—Expectorant; Demulcent; Laxative; slight local stimulant; Corrigent. Uses:—Chiefly to cover taste of bitter medicines; Confectionery; Infusion, Compound Licorice Powder, Flavoring Tobacco. Origin:—Southern Europe, southwestern Asia, England, Germany, Spain, Italy, Austria, Turkey, France, Russia, Afghanistan, Libya. Cultivated and wild. Collection:—Dug when sweetest, autumn of 4th year—preferably of plants that have not borne fruit.

See page
Hopkins & Co., J. L., 135 William St., New York. 3E
King & Howe, Inc., 11 Cliff St., New York. 4E
McIlvaine Brothers, Inc., 1516 Hamilton St., Phila. 24-25C
McKesson & Robbins, Inc., 79 Cliff St., New York. 5E
Peek & Velsor, Inc., 103 Gold St., New York. 6-7E
Penick & Co., S. B., 115 Fulton St., New York. 8E
United Chem. & Drug Corp., Bridgeport, Conn.
Allaire Woodward & Co., Peoria, Ill.
Jacob & Allison, Chas. W., 162 Water St., New York.
Mac Andrews & Forbes Co., 203 Fifth Ave., New York.
McLaughlin-Gormley-King Co., Minneapolis.
Mehl & Daniel Corp., 92 John St., New York.
Merk & Daniel Mfg. Co., 2608 Arthington St., Chicago.
Murray & Nickell Mfg. Co., 2908 Arthington St., Chicago.
Thompson & Hayward Chemical Co., 29th St., Kansas City.

SIFTERS.

Sifters, or sieves, are divided into these classifications: centrifugal sifters, in which the dry material is thrown through the bolting cloth by means of centrifugal force; brush sifters, which utilize a brush to force the material through the cloth; gyrating sifters, or sieves, which sift by means of vibration and a gyratory action facilitated by the rubbing of balls or brushes on the bottom of the bolting cloth; and reels which differ from the others in that they consist of an enclosed barrel screen covered with a bolting cloth of suitable mesh through which the material is forced by tumbling. Sifters and mixers are primarily mixing machines provided with sifting attachments. This sifting attachment may take the form of a brush sieve, or it may take the form of a gyrating sieve mounted on top of the mixer. The centrifugal sifter is a very useful and high speed machine specially adapted for sifting difficult materials which have a tendency to slide around on the bolting cloth without going through. Zinc Stearate, for example, is so extremely light that it is difficult to sift. Brush sifters are used for materials which have a tendency to lump, or which are sticky, as, for instance, powder nail polishes, precipitated chalk color and perfume base for face powder, and some tablet granulars. Gyrating sieves are used for face powder and materials comparatively easy to sift. Reels are used for heavy materials and also those which, like zinc stearate, are difficult to sift. Sifting mixers were described under Mixers, Powder. In the following listings (C) means centrifugal, (B) brush, (G) gyratory, (R) reels, (Sm) sifting mixers.

See page
Abbe Inc., Paul O., Little Falls, N. J. (SM) 3A
Abbe Engineering Co., 50 Church St., New York. (C) 4A
Stokes Machine Co., F. J., Olney P. O., Phila. 18-20A
Day Co., The J. H., Cincinnati, Ohio. (B,Sm,G)
Great Western Mfg. Co., Leavenworth, Kansas. (G)

BARBITAL.

Veronal; Barbitone; Diethylmalonylurea; Diethylbarbituric Acid. $(C_2H_5)_2C(CONH)_2CO$. Made by the interaction of the diethylester of malonic acid and urea. Characteristics:—Colorless or white crystals, or a white crystalline powder. Odorless; taste slightly bitter, and is stable in the air. M. P. 187.190°C. Soluble one Gm. in 130 cc. of water, 14 cc. alcohol, 75 cc. chloroform, 35 cc. ether, at 25°C. One Gm. in 13 cc. boiling water; also acetone and ethyl acetate. Grades:—U. S. P. Containers:—1 oz. packages; 10-15 grain vials; tablets in various packages. Uses:—Simple agrypnia, and insomnia accompanying hysteria, extreme nervousness, neurasthenia, hypochondria, melancholia, conditions of anxiety, cough, carcinoma, dyspnea, pains, pruritus, operations, seasickness, vomiting of pregnancy, epilepsy, chorea, imbecility, idiocy, paresis with excitement, and promoting both scopolamine and general narcosis; also in cure of morphinism and cocainism, and mental disturbances; paranoia, alcoholism, delirium tremens, nicotism, lessening tremors in multiple sclerosis, paralysis agitans, hemiplegia, delirium; in pneumonia, senile pruritus, neuralgia, whooping-cough; cerebral tumor. Action:—Reliable Hypnotic.

See page
Abbott Laboratories, N. Chicago, Ill. 2C
Hoffman-La Roche, Inc., Nutley, N. J. 14C
Huisking & Co., Chas., 155 Varick St., New York. 15C
Mallinckrodt Chem. Wks., 3600 N. 2 St., St. Louis. 20-23C
Merck & Co., Rahway, N. J. 26-27C
Newport Chem. Wks., Inc., Passaic, N. J. 30-31D
Gane & Ingram, Inc., #3 W. 16 St., New York.

— See Cover 2 —

MERCK'S

Medicinal Chemicals

IODIDES — BROMIDES
BISMUTH SALTS
HYPOPHOSPHITES
GLYCEROPHOSPHATES
CITRIC ACID & CITRATES
ACETYLSALICYLIC ACID
SALICYLATES — BENZOATES
TARTARIC ACID
TARTRATES
IRON & MANGANESE SALTS
QUININE & ALKALOIDAL SALTS OF CINCHONA
THYMOL — EUCALYPTOL
CAFFEINE — ACETPHENETIDIN
BARBITAL — AMIDOPYRINE
MERCURIALS
LITHIUM SALTS
STRYCHNINE ALKALOID & SALTS
GUAIACOL & CREOSOTE CARBONATE

Cosmetic Chemicals

MERCURY AMMONIATED
SODIUM BORATE C.P.
OXYQUINOLINE SULPHATE

IF you are to attain the success you desire, the chemicals you use must be of a standard adapted to the use to which you put them.

That's where your business touches ours. We manufacture highly purified chemicals for pharmaceutical, cosmetic, and other manufacturers, in convenient bulk packages. Our experience has been long and varied.

Through its founders and predecessors our organization has been identified with modern chemistry from its beginning. The name "Merck" on a chemical label is accepted as meaning "Highest Standard" wherever chemicals are used.

Our chemical service department is at your disposal to aid you with problems in the manufacture of medicinal and cosmetic preparations.

Correspondence invited

CALCIUM CARBONATE PRECIPITATED
SAPONIN PURIFIED
SODIUM PHOSPHATE TRIBASIC
MAGNESIUM CARBONATE POWDER
SODIUM STEARATE
ZINC OXIDE
ZINC STEARATE
And Many Others

MERCK & CO. INC.

MANUFACTURING CHEMISTS

RAHWAY, N. J.

New York Philadelphia St. Louis

INDUSTRIAL DIVISION: PHILADELPHIA, PA.

Canadian Works: MERCK & CO. Limited, Montreal

Drug Trade Advertising Up

Advertisers of drugs and toiletries, with expenditures of $3,933,788 in March, showed gains in the use of all classes of media, with radio broadcasting recording the largest percentage gain. The total for the month compares with $3,656,890 in March of 1930, a gain of 7.6 per cent., according to the Business Survey Department of Dorrance, Sullivan & Co., New York advertising agents.

In national magazines the manufacturers of drugs and toiletries spent $3,420,846, of which total $2,290,485 was spent for the promotion of beauty preparations and toiletries, and $1,130,361 for medical and proprietary goods. This total for national magazines compares with $3,392,343 in March of 1930.

The accumulative figure for the first three months, of $9,352,438 shows a gain over the total for the comparable period of 1930, when $9,166,598 was spent. This gain, amounting to $185,840, is 2.02 per cent. of the 1930 figures.

Emery Interests Unite

Formation of the Emery Corporation to consolidate three companies owned by Emery interests was announced from Cincinnati, March 25. The corporation, articles for which are being filed in Columbus, will acquire the capital stock of Emery Industries, Inc., Twitchell Process Co., and Kontol Co.

The Emery Corp. will have 100,000 shares of no par common stock. No new financing is contemplated. Formation of a parent company will unite and consolidate assets in excess of $5,000,000, owned by the three units.

Emery Industries is reputed to be the largest producer of stearic acid and red oil in this country, and is a large factor in the candle business. The Twitchell Co. was formed in 1898 and incorporated in 1915. It has branched out into the chemical specialty field, as has the Kontol company, incorporated in 1927.

Rose, New President Sun Tube

Willis M. Rose, recently elected president of the Sun Tube Corp., Hillside, New Jersey, was educated at Brown University and at Cornell, from which he was graduated in 1910. His first business experience was obtained in lumber. From this he turned to building construction and thence to cement. During the war he served as vice-president and general manager of the Springfield Aircraft Corp., Springfield, Mass.

Mr. Rose is well experienced in banking through extended experience as an industrial specialist for J. C. White & Co. As an economic advisor and assistant to the president, he shared in the organization of nationally known enterprises.

Monsanto Promotes Livingston

Monsanto Chemical Works, Board of Directors, recently elected John W. Livingston, manager of St. Louis works, vice-president. Mr. Livingston joined Monsanto on March 1, 1928, and was elected assistant vice-president one year ago.

The Monsanto board also elected Dr. L. P. Kyrides assistant vice-president in charge of research. Dr. Kyrides joined the company November 9, 1928.

F. W. Berk & Co., chemicals, New York, has moved its offices to the Chrysler building, rooms 504 and 506. New telephone, Murray Hill 2-5153. P. F. Berk, president of the company, arrived from London recently and will be in the United States for several months.

Merck & Co., Inc., has called for redemption on May 1 next, $300,000 of its 1st mtge. 6% bonds which will bring the total amount of bonds redeemed since issuance in June, 1927 to $2,100,000. There will remain $600,000 of these bonds outstanding.

U. S. Alcohol Earnings

Final report of U. S. Industrial Alcohol Co. for 1930 shows net income available for the 373,846 common shares of $1,104,752, before adjustments made for the reduction of carried over inventories to market values. This is equal to $2.95 per share on the common, compared with 1929 net income of $4,720,857, or $12.63 on the common. After payment of dividends at $6 per shar and making adjustment of $3,000,000 in reducing inventories to market values the company had net loss of $4,383,169.

In connection with the write down on the inventories C. E. Adams, chairman of the board, who signed the report to stockholders, said the policy of the company had been to carry over inventories of molasses at cost and let the first few months of the ensuing year bear the burden, or reflect the gain from any difference in cost and market prices. This was done, he said, because the new crop of molasses does not move to the United States from the West Indies much before March. However, the loss at the close of 1930 was so great, due to falling prices for molasses, that the special charge of $3,000,000 was made to surplus. The deduction puts the company in a position to take full advantage of present molasses prices, Mr. Adams stated.

Allied Chemical Net Off

Allied Chemical & Dye Corp. reports net income of $25,103,539 for 1930, after all charges including depreciation, obsolesence, taxes, renewals and repairs. This is equivalent, after preferred dividends, of $9.77 per share of 2,686,980 shares outstanding, and compares with a net of $30,198,523, or $12.60 per share on 2,178,109 common shares outstanding at the end of 1929.

The surplus account totaled $204,133,460 at the end of the year, being a net increase of $6,954,606 over the surplus of $196,205,745 reported at the end of 1929.

Lehn & Fink Clear Loans

At the annual meeting of stockholders of Lehn & Fink Products Co., Bloomfield, N. J., May 6, it was announced that the only remaining bank loans of the company, amounting to $400,000 in January, had been paid off. The company is now completely free of indebtedness.

The following directors were reelected: Edward Plaut, William H. Gesell, A. R. M. Boyle, Edmond E. Wise, Isaac Lande, Arthur Lehman, Walter P. Sachs, H. C. Van Voorhis and Jacob J. Newman. The new board will elect officers at a meeting to be held soon.

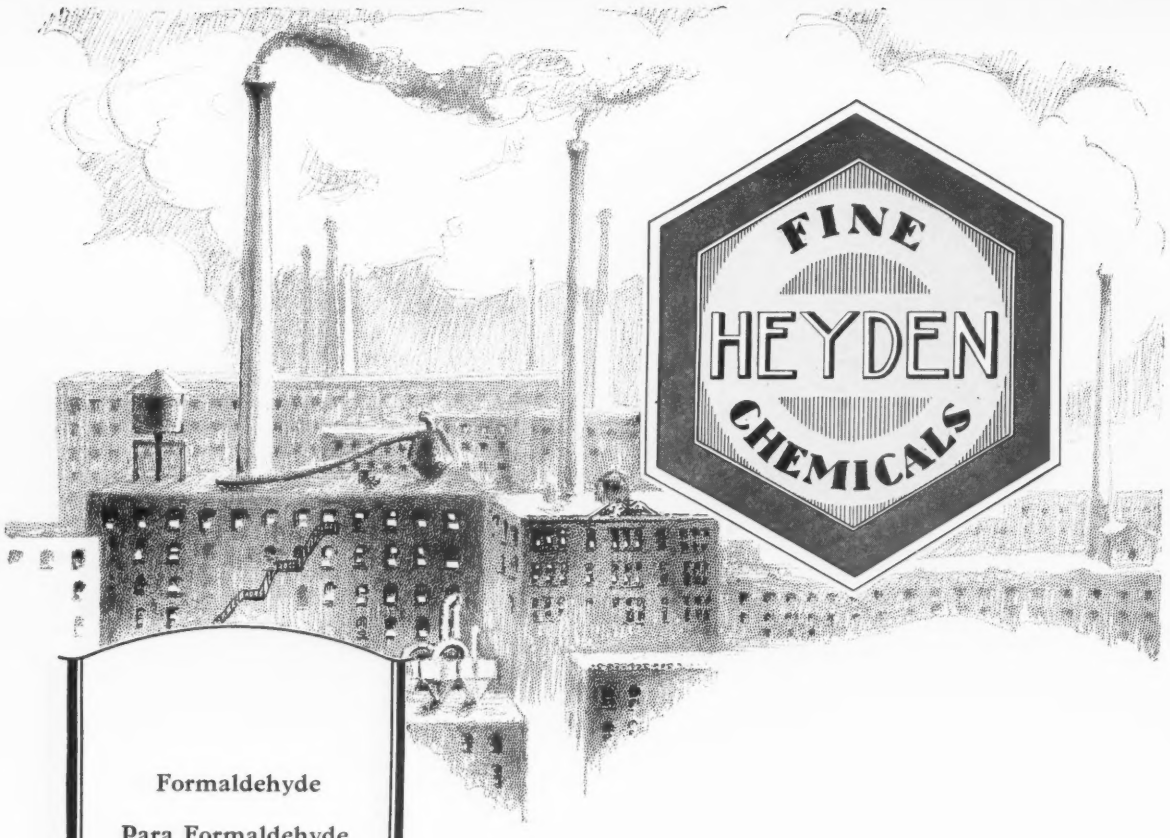
Colgate Stock Offering

Offering was made on April 9 of $8,000,000 Colgate-Palmolive-Peet Co., 6 per cent., preferred stock at 101¾ flat. Offering was by the Guaranty Co. of New York, the Continental Illinois Bank & Trust Co., Goldman, Sachs & Co. and Field, Glore & Co. Proceeds from the sale of the stock are to be used for expenditures made on acquisition of additional properties and for other corporate purposes.

Noxzema Gains

In an analysis just given the Noxzema Chemical Co. by their auditors they report for the first quarter of 1931 as compared cost of sales 4 per cent. greater, advertising 3 per cent. less, with the same period last year: sales 47 per cent. greater, gross profit 4 per cene. less, selling expense equal, administration 2 per cent. less, net profit 11 per cent. greater.

They also report that increased sales volume has made larger quarters necessary and that they are now laying the foundation for an extension to their building that will double the present space.



Formaldehyde

Para Formaldehyde

Hexamethylenetetramine

Bromides

Benzaldehyde

Benzyl Chloride

Creosote

Glycerophosphates

Guaiacol

Silver Salts

ACETYL SALICYLIC ACID

METHYL SALICYLATE

SODIUM SALICYLATE

SALICYLIC ACID AND MINOR SALICYLATES

SODIUM BENZOATE

BENZOIC ACID

HEYDEN CHEMICAL CORPORATION

50 UNION SQUARE NEW YORK

Chicago Branch:
180 N. Wacker Drive

Factories:
Garfield, N. J., Perth Amboy, N. J.

Alcohol Price War Ended

Distillers throw cost considerations to the winds in mad scramble for 1931 business.

AFTER a schedule of prices had been prepared and printed for some of the sales forces of the alcohol manufacturing firms under date of March 20, the market broke wide open on the evening of March 25 with a wild scramble by all manufacturers to drag in contracts for the balance of the calendar year at almost any price.

Properly to appreciate the extent to which the market declined, it must be known that the schedule expected to become effective named prices one cent per gallon below last year, but at the same time included non-returnable shippers, or light drums, which meant a further reduction in price of about three cents per gallon. But on the morning of March 25, when the first moves to obtain business were started the price was openly announced to be 24 cents per gallon for tank cars of C.D. 5—which price represented a cut of 10 cents per gallon from the price that was to have been quoted, and 11 cents per gallon from the price previously in effect, in addition to containers inclusive being added to the cost. The tank car price of C.D. 5 is taken as the base price in all alcohol schedules, other packings and formulas being at a fixed differential above this price.

Chaos ruled when this price was announced with sellers attempting to reach all their customers and prospects at the same time by telephone or in person so as to book their requirement contracts for the balance of this year. The battle between the distillers waged so hot that further openly admitted reductions were necessary and the price tumbled to 19 cents per gallon for tank cars of C.D. 5,—a full revision downward of 16 cents per gallon, or 46 per cent. from last year's prices.

Naturally something of a reduction was justified by the lower market for the raw material—molasses—now in effect. But it must be remembered that distillers were required to take heavy inventory losses at the end of 1930 due to the fact that they had to write down to market levels the heavy stocks of molasses which they bought during 1930 at high contract prices. The decline in business due to general conditions as well as a falling off in demand as the result of warm winter and a consequent small consumption of alcohol as an anti-freeze, forced distillers into the position of having excess stocks of molasses.

As a general rule the cost of naked alcohol can be figured by multiplying the price of molasses by 2½ and adding ten cents. Thus at the current price of approximately 4 cents per gallon for molasses, the cost of alcohol would be 20 cents per gallon. With additional packing, shipping and selling costs, it is a foregone conclusion that distillers are facing losses on the very large part of their shipments during the balance of 1931 unless something unforeseen happens in the molasses market, which break, if it did come, would perhaps do no more than allow the distillers to break even.

While, naturally enough, no definite reasons are given by distillers for the price war, the inquirer is allowed to assume that it is the result of consistent price cutting by one distiller who is said to have greatly increased his volume by this method. Upon questioning as to why the other distillers waited so long, distillers state that they can not understand it but assume that the gain that the price-shading distiller was making was not generally realized—the other distillers had assumed that consumption had fallen.

However, there is reason to believe that the fight has a deeper seat than a mere attempt to chastise a member of the industry who has been shading prices for years back. Furthermore, there were very definite outward signs within the past two months to create in the initiated the definite assumption that this member was going to adhere to schedules in the future. It was pointed out that this member of the industry had likewise suffered losses during 1930 as a result of the falling molasses prices and was just as anxious as any of the others to recoup his losses by maintaining during 1931 a schedule of prices that would price alcohol well above the price indicated by the current market for molasses.

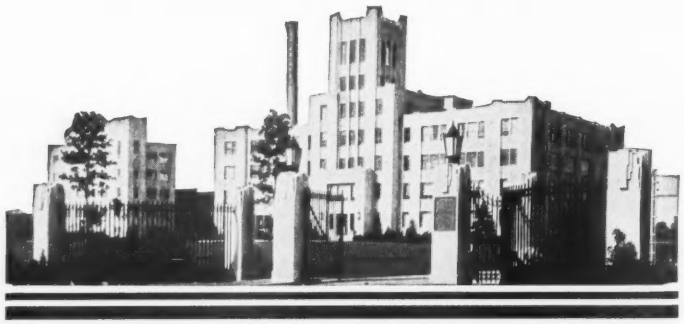
Rather would the present struggle appear to be due to a new impending line-up among the alcohol distillers which might bring into one company some of those formerly in competition. Naturally a company to be left out of this combination might feel that its place in the industry would be seriously jeopardized unless such a company were able to increase its own importance by taking a major part of the business. There are indications that such is the basic cause and that the price war was not desired by the great majority of the distillers but rather by one which is determined to keep its relative position in the industry despite any mergers bringing very heavy gallonage under one control.

The price has been stabilized at the 24 cents per gallon figure, but this came about only after the very large majority of the business was written at almost any price and practically all adjusted to the lowest one in effect. While 19 cents per gallon for tank cars was the lowest one generally quoted, this price was said to have been shaded in some particular instances by as much as 2 or 3 cents per gallon.

It is observed by some that the demoralized market conditions which accompanied the closing of contracts for the balance of the year are not without their advantages to the alcohol industry. One of the obvious advantages is that the low cost of alcohol with a maintained retail price in service stations will give the sellers of anti-freeze an interest in alcohol and a disinterest in the anti-freezes which are competitive with alcohol.

Not only will this include the higher priced anti-freezes, but also methanol which is still the subject of a health hazard controversy. Methanol has been forced lower in price as a result of the lower alcohol prices, and the lower market might retard the efforts of those interested in methanol who have been so actively opposing legislation in various states designed to prevent the unrestricted sale of methanol.

Also there is the thought that the present low prices for alcohol might forestall extension of operations in synthetic manufacture. One company manufacturing approximately 7,000,000 gallons of alcohol synthetically during the past year was understood to be desirous of increasing this quota to 15,000,000 gallons. It is very doubtful if this company can make money at the prevailing market price.



Roche Fine Chemicals and Alkaloids

BARBITAL
QUININE *and* SALTS
STRYCHNINE *and* SALTS
SAPONINE

Aconitine (Amorphous)
Aconitine U.S.P. (Crystals)
Aconitine Hydrobromide
Amidopyrine U.S.P.
Arecoline Hydrobromide
Atropine Alkaloid U.S.P.
Atropine Sulphate U.S.P.
Barbital U.S.P. (Diethyl-barbituric acid)
Barbital-Sodium U.S.P. (Sodium diethyl-barbiturate)
Benzonaphthol (Betanaphthol Benzoate)
Berberine Neutral
Berberine Hydrochloride
Berberine Sulphate
Brucine Alkaloid
Brucine Sulphate
Cocaine Alkaloid U.S.P.
Cocaine Hydrochloride U.S.P.
Codeine Alkaloid U.S.P.
Codeine Phosphate U.S.P.
Codeine Sulphate U.S.P.
Colchicine Amorphous U.S.P.
Colchicine Alkaloid (Crystals)
Colchicine Salicylate
Creosote Carbonate U.S.P.
Digitalin (German)
Duboisine Sulphate
Elaterin U.S.P.
Emetine Alkaloid
Emetine Hydrochloride U.S.P.
Ephedrine Alkaloid
Ephedrine Hydrochloride
Ephedrine Sulphate
Eserine Alkaloid (Physostigmine)
Eserine Benzoate
Eserine Hydrobromide
Eserine Hydrochloride
Eserine Salicylate U.S.P.
Eserine Sulphate U.S.P.
Ethylmorphine Hydrochloride U.S.P.
Guaiacol Benzoate
Guaiacol Carbonate U.S.P.
Homatropine Alkaloid
Homatropine Hydrobromide U.S.P.
Homatropine Hydrochloride
Hydrastine, Alkaloid
Hydrastine, Hydrochloride
Hydrastine Sulphate
Hydrastinine Hydrochloride
Hyoscine (Scopolamine) Alkaloid
Hyoscine Hydrobromide
Hyoscine U.S.P.
Hyoscine Hydrochloride
Hyoscine Sulphate
Hyoscyamine Alkaloid (Crystals)
Hyoscyamine Hydrobromide U.S.P.
Hyoscyamine Sulphate (Crystals)
Morphine Sulphate U.S.P.
Physostigmine and Salts (see Eserine)
Pilocarpine Alkaloid
Pilocarpine Hydrobromide
Pilocarpine Hydrochloride U.S.P.
Pilocarpine Nitrate U.S.P.
Pilocarpine Salicylate
Potassium Guaiacol Sulphonate
Quinine
  Alkaloid
  Acetate
  Arsenate
  Arsenite
  Benzoate
  Bisulphate U.S.P.
  Citrate
  Dihydrobromide
  Dihydrochloride
  Ferrocyanide
  Formate
  Glycerophosphate
  Hydriodide
  Hydrobromide
  Hydrochloride
  Hypophosphite
  Lactate
  Phenolsulphonate
  Phosphate
  Salicylate
  Sulphate U.S.P.
  Tannate
  Tartrate
  Valerate
Salicin U.S.P.
Sanguinarine Nitrate
Saponin Purified (ex Quillaja)
Scopolamine (see Hyoscine)
Silver Nucleinate (Argento-Proteinum Mite U.S.P.)
Silver Proteinate (Argento-Proteinum Forte U.S.P.)
Sodium Cacodylate U.S.P.
Sparteine Sulphate
Strophanthin U.S.P.
Strychnine
  Acetate
  Alkaloid Crystal
  Alkaloid Granular
  Alkaloid Powder
  Arsenate
  Arsenite
  Citrate
  Glycerophosphate Crystal
  Hydrobromide
  Hydrochloride
  Hypophosphite
  Nitrate U.S.P.
  Lactate
  Phosphate
  Sulphate Crystal U.S.P.
  Sulphate Powder U.S.P.
Theobromine Alkaloid
Theobromine Sodio-Salicylate U.S.P.
Thymol Iodide U.S.P.
Veratrine, Alkaloid
Veratrine, Hydrochloride
Veratrine, Sulphate
Yohimbine Hydrochloride

HOFFMANN-LaROCHE, INC. . . . . Nutley, New Jersey

Psyllium and the Blonde Seeds

A repetition of last year's strong psyllium seed market brings into the spotlight the blonde seed of India which is making marked headway in the market.

PSYLLIUM seed has repeated, although with somewhat diminished vigor, its sensational advance of last year. The difference , however, is significant and fundamental. Last year there was some evidence of a real shortage due to unprecedented demand. In the present market there is at least cause for reasonable doubt that any real shortage exists.

The advance of the past month has been sudden and definite. In fact there were some who predicted this advance with certainty only a few days prior to its arrival. In addition it is tacitly admitted that the advance is not due to any rapid realiaztion that supplies are short, but rather to the fact that avaiable supplies have for the most part passed into strong hands who will control the market from now until the new crop is gathered in August.

Who the strong hands are remains in doubt. Certainly there are some holders who confidently expect that the whole crop will be consumed. But if, as there is some reason to surmise, the concentration of supplies is in large part directed by a large seller of packaged psyllium seed, then the question arises whether this consumer is buying merely from the viewpoint of consumption, or with another two-fold purpose in mind.

One obvious result of such a move would be a greatly increased production of seed for the coming year with resulting low prices. In this manner a large seller of seed could confidently go ahead on a country-wide advertising program knowing that there would be plenty of seed available at low prices to meet such demand as he could stimulate. In other words, by raising prices this year and even taking a loss by holding some of the seed until after the new crop goods are available, the packager could either stimulate production, or could break the market for the new crop goods by dumping his supplies at a loss when the new crop is offered for sale.

Another advantage to be realized by a large consumer who might be largely responsible for the concentration of supplies, would be the squeezing of competitors from now until the new crop comes through five months hence. Affected by this move would be those competitors who package only against orders, and wholesalers and others who are supplying their own brands. Naturally, many of these packers would be forced to pay so dearly for their seed that there would be very little, if any profit left. Discouragement would be the desired result.

This continued activity in the black variety of seed has, quite naturally, stimulated interest in the blonde or white member of the family. It is reported that contracts for from 500 to 600 tons have already been placed by buyers in this country for the blonde seed. Of this quantity, about 100 tons have already been imported. When these figures are compared with the 25-35 tons imported in 1930 and 50 tons imported in 1929 they assume an added significance. In one quarter it is prophesied that in 1932, imports of the white will equal those of the black seed, and that in the succeeding year, the white will definitely pass the black in volume.

Whether or not this will come to pass depends entirely upon one factor, about which little or nothing is known, or at least has been made public up to the present time. That is, the therapeutic value of the white seed as compared with that of the black. It is generally conceded that the white seed has a higher mucilaginous content, but beyond that opinion seems to vary considerably. Some claim that the white seed is superior in every respect but others assert that it contains too much mucilage in comparison with the body of the seed—that the mucilage separates from the seed, thus breaking down the combination of lubricant and increased bulk to which the laxative action is generally attributed. But, it must be re-emphasized at this time that nothing really definite and authoritative has appeared in regard to therapeutic action and value.

Granting a higher mucilaginous content to the white seed is tantamount to admitting that it is the best for manufacturing purposes. Such firms as purchase the Plantago seeds for use in manufacturing processes are reported to have swung over almost entirely to the white seed. Even if the two seeds were equally priced purchase of the blonde would obviously be advantageous, but with the present price differential the saving is a tremendous one.

But the packaged seed market is the important one from the viewpoint of suppliers, for it is there that the real bulk of the business lies. At present both the white and the black seeds are being packaged, and, in many cases, sold side by side. From some sources it has been reported that repeat sales on the white have been greater than those on the black when sold in competition in this way. Others report that the white has been difficult to sell, despite a considerably lower price. An important feature of this merchandising and also of invoicing the white seed for import, is the fact that strictly speaking it is not a "white psyllium seed." It is a white or blonde or Indian Plantago seed or Plantago Loeflingii while the black seed is Plantago Psyllium and thus the only one really entitled to the psyllium designation. It has been stated that blonde seed for import must be invoiced "Plantago Ovate." But since most of the seeds are sold under branded names, this question of terminology can make but little difference except on the invoice and on the label of the package in which it is eventually sold.

The white seed is a native of India where it grows in practically a limitless quantity without cultivation. It is gathered twice a year, about March and October, as compared with the seed grown in Europe which has only the one crop in the fall. The natives of India are said to be thoroughly familiar with the virtues of the white Plantago seed, having used it as part of their regular diet for three or four centuries. Once its therapeutic value is definitely established in this country it could, if the results were favorable, replace the cultivated black seed. The blonde seed offers two crops in limitless volume at low price (10c and 12c lb. at present), as compared with the French crop of black seed offering 1,400 tons of which 1,100 are estimated to have been imported into this country, or the next French crop estimated at about 2,000 tons, at present being quoted for August-September shipment at 17c and 20c lb.

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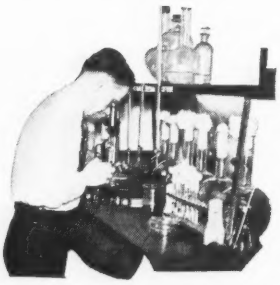

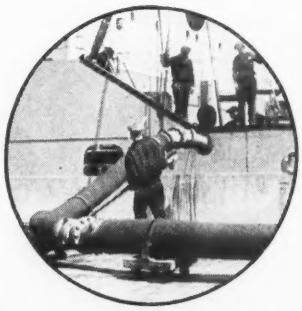

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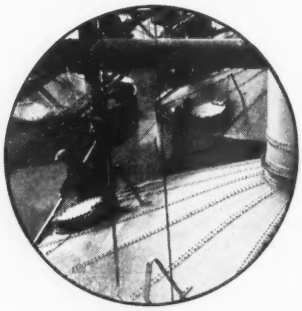

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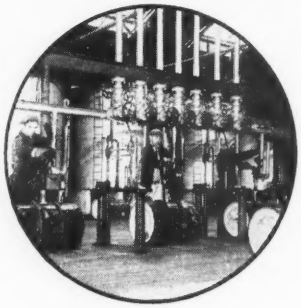

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Geranium Strength Questionable

A SUDDEN rise in Bourbon geranium oil was so sharp and complete in its effect that it caused quotations for the Bourbon oil to advance to a point higher than former quotations for the generally higher priced African geranium oil which oil also advanced in price so that both oils are now selling at approximately the same levels. Furthermore, due to the fact that Java Citronella oil is the source of geraniol, this oil also advanced in price as a result of the upward movement in Bourbon geranium oil, although the Ceylon citronella oil, which is not used for production of geraniol, stood still.

The reason for the sharp advance in Bourbon geranium oil was immediately reported from Reunion as a cyclone. Quotations from the source were not forthcoming with the primary market asking for bids but unwilling to state any price to bid against. However, after some days quotations were given and the importers discounted quite completely the cyclone story. The opinion is general that the rise is due solely to manipulation by speculators abroad. The statement is made on good authority that the crop of Bourbon geranium oil this year is normal and that no shortage is in sight. It is further stated that even though a goodly part of the crop were destroyed by a cyclone, the carry-over from last year's crop was sufficient to make up any shortage that might occur.

It is most surprising that the strength and stories of shortage should be told with reference to the Bourbon oil, and that the Bourbon oil should drag the higher valued African oil up with it. The fact of the matter is that any strength that there is in the geranium oil market lies in the African oil as evidenced by the following report from U. S. Consul Oscar S. Heizer, at Algiers:

"Production of geranium oil in Algeria during 1930 was probably much below that for the preceding year, though the exact figures are still unknown. The production for 1929, according to the official figures, reached 89,388 pounds. Estimates place the 1930 crop at not more than 70,000 pounds. Conditions throughout the year were unfavorable. Many growers were only able to make one cut during the year and in several cases even the second cut, which takes place in the autumn, was abandoned. It is known that the autumn cut did not produce more than 38,000 pounds of geranium oil. Forward sales by producers at prices averaging about $3.30 a pound are in excess of this quantity. The market is, therefore, not so free as is generally the case. The present price is about $5 a pound. Any reduction of this rate must depend on the absence of cutting frosts during the next few months."

It appears that the rise in the Bourbon geranium oil market abroad either by design or otherwise occurred at a time when stocks in this country were at a low point. Consequently the news of the advance caused considerable flurry in the market until importers reassured themselves as to the real facts. However, some importers had no hesitancy in selling large parts of their stocks to competitors who were short, feeling certain that no sharp rise in prices could be sustained. Other dealers in the oil who were forced to buy against orders, bought only sufficient to meet the orders with full confidence that at least no further advances would occur, and feeling quite confident that a decline was in order.

The strength of the situation seems to depend solely on the extent of the control of supplies in primary markets. If sufficient of the available goods are in control of factors strong enough to ride through a prolonged period of small buying against orders in hand, then at least a goodly part of the advance might be sustained or in fact the market might move higher. But the facts do not seem to assure speculators of any great chance of success

Citrus Oils Remain Weak

The citrus oil market continues weak with very little stability as a whole. California orange oil is reported at levels lower than have ever before been reached. Cold pressed is freely offered at from $1.90 to $2.00 per lb., with distilled at $1.00. California lemon is offered at from 65c to 90c per lb.

Cables from Italy would also indicate lower prices there, undoubtedly influenced by the large supplies and low prices at which the producers of American oil are willing to do business.

Bergamot oil, in spite of all efforts to stabilize the market, is also slightly lower. The efforts of any combines to influence the market have not as yet been successful as it would seem that very little can be done in face of the constantly lower prices in the American market.

Imports of lemon oil into the United States from Italy during the month of February amounted to 18,750 pounds valued at $10,966. Orange oil imports amounted to 12,557 pounds valued at $23,618.

Consuls at Messina and Palermo, report esential oil quotations registered a decline in the Italian market at the beginning of February and a recovery at the close of the month. The market was generally dull. Lemon oil quotations show a slightly firmer tendency due to smaller production. Bergamot oil was considerably lower during the month, at 18 to 19 lire against the nominal price of 25 lire set by the consortium. An unconfirmed agreement is reported between the bergamot consortium and the Messina exporters, setting a minimum price for oil of bergamot at 18 lire per pound. The consortium binds itself to purchase from the producers the entire annual production of Bergamot oil, estimated at approximately 600,000 Sicilian pounds. The exporters agree to acquire 60 per cent. of all oil deposited with the consortium and to contribute for each pound of oil one-half lire, whereas the producers contribute one-quarter lire for administrative purposes.

Quotations in lire for essential oils on February 27 per Sicilian pound at Messina were as follows: Lemon sponge, $6.75 to $7.25; lemon machine, $4 to $4.50; sweet orange sponge, $19.25 to $19.50; mandarin sponge, $28; and bergamot, $18 to $19. (The average value of the lira is $0.0523 United States currency and the Sicilian pounds equals 317 grams).

Peppermint and Spearmint Weak

Peppermint oil is weak although official schedule of prices have not been changed. The primary market is approaching the season of new plantings and are therefore in need of ready cash. There is no tendency noticeable there to carry stocks held during the winter any longer so that dealers here are in a position to make replacements where necessary at very satisfactory levels.

Spearmint is in a position similar to peppermint in that the primary market is weakened by the approach of the planting season when ready cash is necessary to carry on operations. The oil is offered more freely to dealers as stocks carried through the winter are offered for liquidation. This basic market weakness is being felt here with the undertone of the spot market being gradually undermined by lower replacement costs.

No official price reductions have taken place but it would not be surprising should such action by dealers be taken.

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Citric Acid Off 3c lb.

Citric acid prices moved lower during the month with producers quoting 37 cents per pound. This drop is understood to be the result of lower prices quoted by foreign shippers, some of the foreign material being brought into this market. While demand has fallen off to any marked extent, there is reported to be excess supplies of citric acid available in the West due to the large amount of lemons that are not finding a market and therefore being salvaged for by-products.

The weakness in the West is stated to be having no depressing effect upon the market, although the producers of this by-product material are notorious for the fact that they will not ordinarily carry stocks from one season to the other and generally are determined to convert their goods into cash. However, in view of the situation it is likely that some means of holding some of this material from distressed selling might be found.

The situation abroad remains very weak due to the generally low prices for all citrus products in Italy. Production of all citrus products in Italy is exceptionally large in the face of conditions and prices continue to weaken. It is also interesting to note that wages generally have been lowered in Italy, although it is stated that *Ill Duce* considers that wages have been lowered far enough.

The lower citric acid prices have brought lower quotations on citrates. Sodium Citrate U. S. P. is offered at 29½ to 31 cents per pound, and Potassium Citrate is offered at 42½ to 43 cents per pound—a decline in both salts of 7 cents per pound. Business in citrates is of moderate proportions with consumers showing little inclination to extend purchases much past immediate needs.

Mercury Gains Slightly

Mercury is up $1 per flask to $101 and $102 per flask. This commodity is in rather a peculiar position in that, while there is evidently no shortage of domestic material, and demand is not particularly promising, there is still a tendency on the part of dealers to hold off from accepting business at this level. This is explained in that there are several brokers in the market for from twenty to thirty flasks and inquiries for material to fill these comparatively small orders have floated around to such an extent that a fictitious atmosphere of activity has been created.

During the past month mercury reached exceptionally low levels selling regularly at $100 with reports that some material was placed at the low figure of $98, which is the first time mercury has sold below $100 for several years.

While the market at present shows some strength, basically it is no stronger. This material is mined in the far west at very high altitudes. During the winter production is often very difficult due to the cold and the impassable condition of the mountain roads. With the advent of spring, and the opening up of the mountain country, production usually takes a spurt upward. It is therefore very likely that increased supplies may be expected in this market in the not distant future. It is predicted in circles usually well informed that an easier tendency will develop during the late spring and early summer as consumption during these seasons generally is not such as to keep this market stable in the fact of augmented supplies.

Quinine Imports Off Sharply

Imports of quinine sulfate, other quinine, and other alkaloids and salts from cinchona bark are shown in the accompanying table. It will be noted that the imports of the bark during 1930 held their own, while the imports of the other items enumerated declined.

	1929		1930	
	Quantity	*Value*	*Quantity*	*Value*
Quinine sulfate (ozs.)	2,471,978	$854,944	1,253,114	$449,491
Other quinine & other alkaloids and salts from cinchona bark (ozs.)	1,324,528	442,409	876,593	332,916
Other alkaloids, salts and derivatives	.....	448,969	.....	275,510
Cinchona bark (pounds)	1,960,000	552,000	1,939,000	585,000

Cod Liver Oil Shoots Up

COD liver oil has advanced sharply in price both on spot and for shipment on the basis of the strong statistical position which we outlined in our January and March reports. The catch of cod fish in Norway is about 50 per cent. of last year's catch. This may be due to poor fishing weather or may be due to an over-supplied market for salted cod fish, which after all is the major product of the cod fishing industry. If the cod fish market is heavily over-supplied, as is reported, the amount of fish caught this year will be small whether the fishing conditions are poor or good.

However, the rapidity with which the advance in the market took place leads strongly to the suspicion that manipulation has entered into the situation. In other words, factors in possession of reliable information as to the strong statistical position of the market, probably accelerated a normal rise in price by buying heavily of existing stocks and thus taking oil out of the market at the lower prices.

Whether or not the market has been stimulated beyond its proper price level and will react depends entirely upon true relationship of production to consumption, and while consumption may be safely assumed to at least stay stable if it does not increase, the amount of oil available from Iceland will not be known through any available statistics until exports of this oil through Norway cease.

If production generally is in line with the situation in Norway, the market should stand further advances. However, as one trader in oil points out, the market for the oil always advances in the Spring when the production is coming through but when there is no demand. The market, this trader also points out, always declines when the heavy demand starts in the Fall.

As we have indicated before, demand increased sharply in 1930 in the face of depressed conditions, due to a steadily increasing appreciation of the value of cod liver oil therapy on the part of physicians and the layity. The increasing number of cod liver oil concentrates making cod liver oil available in more pleasant forms should of itself, and also because of the active merchandising efforts behind all these products, further stimulate consumption in the face of depressed conditions.

Although we indicated last month that sardine oil threatened to replace cod liver oil in animal feeding as a source of vitamin D, we have just been informed of experiments that indicate that although sardine D exhibits a vitamin D potency when used on rats, this same potency appears to be lacking when the oil is used on chickens. We plan to have a full report of this condition in our May issue.

A consul report from Norway states that attempts are being made to improve the taste and quality of Norwegian oil. One firm in Norway advertises oil combined with concentrated orange juice. Experiments are being made at the State Vitamin Institute to perfect methods of testing and controlling the quality and vitamin content of the oil.

During 1929, Norway supplied 67 per cent. of the cod liver oil imported into this country. Imports for the past two years were: 1929, 2,860,000 gallons, valued at $2,445,000; 1930, 2,895,000 gallons, valued at $2,230,000.

Less Barbital Imported

A decided drop in incoming shipments entered for consumption of diethylbarbituric acid and derivatives occurred during the second half of 1930, when 1,211 pounds, value $3,136, were entered as compared with the first half when imports aggregated 18,283 pounds, valued at $135,744. Comparative data for recent years follow:

Year	*Pounds*	*Value*
1928	23,278	$190,112
1929	30,876	248,926
1930* (preliminary)	19,494	138,910

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UNCO BRAND Olive Oil is produced and packed for us exclusively in the Riviera district of Northern Italy. In this section a happy conjunction of ideal soil and climatic conditions results in an oil of maximum blandness and excellent flavor, unmatched by the oils of the more Southernly districts of the country.

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UNCO BRAND oil is available in original 57 gallon drums or in 6 and 1 gallon cans, quart and pint cans, all shipped to the purchaser in the original Italian packages.

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UNGERER & COMPANY

NEW YORK

Market Facts From Grasse

¶ Jasmine May Not be Gathered

¶ Rose Future Uncertain

¶ Orange Flowers Point Lower

¶ Lavender Thought at Bottom

By O. C. Zilisch

Our Grasse Correspondent

ALTHOUGH weather conditions in the Grasse region from every point of view have been excellent, causing no damage of any kind up to the present time, still the growers in this section of France are looking forward to a dreary season. This holds true particularly with resepct to those who have jasmine plantations, as pointed out from month to month in DRUG MARKETS. It would really seem that the pessimistic outlook had reached its limits, but now the rumor is being spread that this year's crop of jasmine may not be gathered at all. Or if it is gathered, the prices paid will be so low that the gathering will hardly be paid for, to say nothing of the labor, investment, etc., involved.

With this in prospect one does not have to be very imaginative to see that some very interesting things are in the offing. Stocks have not, as every one knows, been moving into consumption as quickly as they should, with the further result that there has been a stoppage along the entire line. It is nothing new to report that plantations slightly advanced in age are simply being torn out, to make room for vegetables, table grapes, anything that will bring in a living.

One dislikes giving out nothing except pessimistic reports, but when even the regional association papers stress the badness of the situation, one is bound to sit up and take notice. Articles are now appearing, in a number of the agricultural papers, headed *La Grande Misère des Plantes à Parfums*, or, literally, The Great Misery of Perfume-Flower Plants. These articles also cover conditions existing in the colonies, and for the benefit of the readers of DRUG MARKETS the article dealing with the perfume-flower plant situation in the colonies has been translated, and will be found in another section of this number.

Among the reasons given for the falling off of natural flower oil sale and consumption is the increasing use of synthetics, and one regional paper, representing a number of agricultural associations, has stressed this aspect very strongly in a front page article.

It is even reported that some of the cooperative distilleries will be forced to close, due to the fact that they can not get rid of their yields of flowers advantageously. Prices paid are so low that they are absolutely prohibitive insofar as making any money is concerned, or to break even. The coming season is said to open under "de noirs auspices," or, literally, under dark auspices.

Naturally, all of this works against the grower of perfume-flower plants, as he is the one to lose money. If, however, there should be a sudden brightening of thesituation, insofar as stocks moving into consumption are concerned, then certain prices would, due to the enforced smallness of yields, go sky high.

Jasmine would be one of the first to show this reaction upward, for the reason that replacements in the form of table grapes have been made on a comparatively large scale. Table grapes grow very well in the Grasse region, and with Paris, London, and other big centers as markets, these grapes offer a far better return to the grower than does jasmine, or even the rose.

The situation is far from encouraging to the grower of perfume-flower plants, and the result will be, it is predicted, a complete economic change throughout the region. Big distillers with their own plantations will be the only ones to come out of the development practically unscathed, but the small grower is being pushed harder and harder up to the wall.

Reports throughout the region on the May rose seem to vary a bit. In certain sections the care given this important culture has been everything it should be, whereas in others a certain amount of negligence has crept into the picture. At any rate, as already reported previously, the yield for this year is expected to be below the normal. Due, however, to the fact that last season's yield was also small, it is thought that the price paid for the flowers will be somewhat higher than last year. Stocks of rose products are comparatively small, and this will also help the grower to realize a bit more on the price this season. However, it is still too early to make any definite predictions regarding the price of the rose in the Grasse region. Many things can come in to upset the best intentioned estimates and prophesies.

The continued good weather has been very favorable to the orange trees of the region, and they are in excellent shape, everything considered. This should mean a satisfactory crop, particularly if all continues along nomal lines from now to the gathering season. A lower price for the flowers of the orange tree is envisaged, although this must not be taken for definite, as the situation may change to this effect. Last season's prices were, as the trade will remember, satisfactory to the grower, and could, perhaps, stand a slight reduction, although not too much either, due to the losses some of the growers of this culture suffered from the adverse weather conditions that visited the Grasse region several years ago. The damage done then has, however, practically evened itself now, with many of the trees staging an unusually good come-back, when considering the conditions that existed during the winter of 1928-1929.

As previously reported, the Parma violet yield, recently terminated, was not very large, this culture practically disappearing from the Grasse section as such. The Parma paid about 15 francs (60 cents) per kilogram this season, and so-called bouquet, Victoria, and other types of violets paid between 5 and 6 francs per kilo (20 and 24 cents).

The jonquil at one time in the past was so rare that the flowers brought as high as 60 francs per kilo ($2.40), whereas this year's crop, considered practically normal, is bringing only 4 francs (16 cents) per kilogram, a price that is considered absolutely ridiculous to all concerned. It may be readily seen that the grower can not even cover his expense of cultivation, much less the gathering, etc. This, therefore, will, no doubt, be another culture to go the way of the others, until such a time as the entire situation changes. Even last year's price was thought to be very low, relatively speaking, but at that 16 francs 50 centimes (66 cents) seems fabulous against the 4 francs (16 cents) of this season, not to mention what the prices of 60 francs, 50 francs,

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40 francs, 25 francs, of previous years conjure up in the minds of the perfume-flower grower of today.

Lavender cultivation has been neglected somewhat, due to the low prices lavender products have brought and are still bringing generally. However, due to the wide use made of this essential oil at the present time in various industries, it is not thought that it will suffer any further reactions downward. True, no one can tell, but it is thought that the dead level has been reached with regard to lavender, and it is further thought that this season's crop will be of a size to help stabilize the situation even further. That prediction can, however, change considerably, and it would be unwise for anyone to count on such a prediction at this stage of the game. Within a short time now a more definite picture of the situation can be drawn, but in the meantime lavender will continue to puzzle even those who are very close to the entire situation.

An interesting report (to be found in another section of this issue) was recently issued on the growth of the so-called *lavandin* in France. Rolet gives this as being a hybrid between the lavender and aspic, or spike lavender. Apparently, this culture is grown in considerable quantities throughout the lavender-growing districts of France. It is a vigorous plant, and the hope is held out that the growing of this plant along commercial lines, hitherto not done, will permit France to furnish a large amount of oil at a very cheap price. More information regarding this interesting plant, in addition to the article signalled, will be given to the trade as the cultivation and industrialization of it develops.

Perfume-flower plants of secondary importance like the tuberose, mint, etc., are gradually and surely disappearing from the Grasse region. The mint, once a very popular culture in the section, can hardly be found anymore, with the exception of several plantations in the hands of large distillers. True, there are a few scattered plantations here and there, but they are not worth mentioning when compared with the plantations that used to be in existence in and around Grasse.

The tuberose, as reported so often in DRUG MARKETS, is fast losing ground as a flower for the perfume industry, due to the

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decreased use of the essential oil. It is thought, however, that this product will again come into favor with the disappearance of some of the other cultures. There are many who hope so, as the tuberose furnishes an essential oil that is very valuable to the manufacturing perfumer who wishes to produce several items of distinction. Several distillers report a slight return to the tuberose, and this may mean the beginning of a renewed demand.

As already signalled, everything possible is being done in the region to awaken interest in the various products grown there, and that applies in particular to the olives in Southern France. Some of the smaller olives are very tasty, and done up in brine they are coming more and more into demand among certain people. This will, naturally, cut down on the supplies available for olive oil, although it is stated by those in touch with the situation that since the coming of peanut and other oils the olive oil situation in Southern France is unsatisfactory to the grower. There is over-production, it is claimed, with the result that an outlet for the olives themselves would help to bring in money to those who have olive trees growing without any profit-producing possibilities at the present time. Last year's yield, as the trade knows, was excellent, throughout Southern France and in the colonies, and this year is expected to go below that of last year, in fact considerably in certain sections of the country. This will help to ease up the situation a bit.

Without exaggerating in any way, the situation in the Grasse region is serious for the grower of perfume-flower plants and other cultures coming within this wide category. Definite moves are being made toward other plants, and anyone going into the section for a visit can find out for himself just how things stand. Only a definite change in the market and consumption possibilities will bring back the stabilizing elements desired for this essential oil center.

General conditions in France, still practically with little unemployment, are good, although the distilling perfumers continue to report a smaller volume of business than other years. This may just mean a temporary cessation on the part of the French manufacturing perfumer, just as cautious as all other French industries are, although it is thought that general world conditions have really made themselves felt, but that only slightly.

Lime Oil Still Higher

Lime oil continues scarce and is much stronger in the spot market. Prices have been marked up by leading factors and the oil is now held firmly at from $10 to $10.50 per lb.

There is very little likelihood that prices will recede from present levels as production has not been sufficient to take care of requirements. The large consuming season, soft drinks, is now at hand and prices are likely to go still higher.

Imports of lime oil into the United States during 1927, 1928, and 1929 amounted to 40,000, 56,000, and 47,820 pounds, valued at $275,000, $470,000, and $328,000, respectively.

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Narcotics Decline Sharply

Narcotics were sharply cut in price during the past month, the reductions averaging from $1.00 to $1.50 per ounce. This follows somewhat lower costs for opium, the raw material. It would seem that the monopoly here has been influenced by reports of lower prices from abroad and a desire to bring the price of narcotics in line with the general business conditions and also to keep faith with the government which controls the restrictive monopoly here. The fact that the heavy consuming season is drawing to a close undoubtedly also contributed to influencing the leading sellers to announce the reductions.

Codeine alkali is now quoted at $10.37 per ounce; phosphate $7.92 per ounce, and sulfate $8.35 per ounce. The sulfate is the only one reduced in the morphine group being offered at from $7.95 to $8.10 per ounce. It is intimated, however, that the hydrobromide and hydrochloride will also be affected.

Glycerine Price Steady

Glycerine continues on an even level as far as price is concerned with the market unchanged at 12½c per lb. There is a report current that in some circles prices fractionally better than this can be done but refiners in the main are adhering to the 12½c price. The market is dull when looked at from the standpoint of consuming demand with buying reported as not being particularly encouraging.

The Department of Commerce reports Swiss imports of 6,799 metric quintals ($81,500 worth) of glycerin and glycerin lye during January, 1931, was a gain over the January, 1930, incoming shipments of 6,696 metric quintals ($69,300). Sweden is the leading source of supply the United States being among the other important suppliers, as may be seen from the following figures of the Swiss imports during January, 1931: Sweden—4,487 metric quintals; Canada—860; United States—498; Germany—423; and the Netherlands 407 metric quintals. The unit values of the foregoing shipments were approximately as follows: United States, Germany, France, and the Netherlands—9c a pound; Sweden and Canada—5c a pound.

Japan Pyrethrum Exports Down

Exports of pyrethrum flowers from Kobe (which port accounts for the bulk of the trade) during the last quarter of 1930 amounted to 2,500,000 pounds valued at $369,500, a decrease of 59 per cent, in volume and 60 per cent. in value when compared with the movement during the same period of 1929, namely, 6,086,000 pounds valued at $945,000.

Prices were lower during the last three months of 1930, fluctuating around 30 yen ($15) per picul (132.27 pounds) f. o. b. Kobe. The highest price for the year was 47 yen ($23.50) f.o.b. Kobe, while the lowest was 28 yen ($14) per picul.

According to sources believed reliable, stocks on hand amounted to 660,000 pounds. However, estimates on the part of other members of the trade placed the figure at 1,056,000 pounds.

The estimate of the 1931 crop is 8,333,000 pounds for Hokkaido and 5,000,000 pounds for the Sambi district, a total of 13,333,000 pounds for all Japan. The Sambi crop will begin to arrive on the market late in May and the Hokkaido crop late in July. The 1930 crop amounted to 14,700,000 pounds as opposed to an advance estimate of 16,742,000 pounds. The low prices of the past year have tended to decrease the acreage but on the other hand there is generally an effort on the part of producers to underestimate the crop with the idea of raising prices.

The demand from the United States fell off during the last quarter of 1930. Consumption in Japan was normal during 1930, it having been estimated by local exporters that the insecticide industry in Japan used 5,000,000 pounds of pyrethrum flowers during the calendar year 1930.

Ipecac Over-supplied

Ipecac is just another item that has finally been seriously affected as to value as the result of the general conditions of drought and unemployment.

Ipecac root is found along the river banks in Nicaragua and Brazil. Although previously the great bulk of our supplies came from Brazil, during recent months Nicaragua goods have been coming in greatly increased quantities. This material has been offered at steadily declining prices as consumers took on available supplies at what appeared to be bargain levels. This added to the difficulty of getting rid of the additional supplies as they continued to come through with the result that the market has been driven to the lowest levels in effect for

But as to the effect of the drought and the unemployment situation. In the first place ipecac is generally gathered in seasons. The seasons are those times when the rivers recede from their banks so that the gatherers of the root can reach it. When the rivers rise, it is impossible for the root to be gathered.

But now the rivers leave the banks uncovered practically all the time. With this in mind it is easy to see why larger offerings are coming through. There is no such thing as the amount gathered this season which must last until next season. It is possible to get plenty of ipecac just so long as the drought lasts.

Added to this is the fact that large numbers of men are unemployed in all countries of the world. It is a simple natural thing for these men located in countries where ipecac is available, to gather the root. With root selling at $2.00 per pound, it was an easy thing for an unemployed native of Nicaragua to maintain himself by gathering ipecac. Even with the root selling at $1.20 per pound in this country, it is still natural that the root should be freely gathered.

Such conditions apparently mean that ipecac will remain weak at low price levels until either or both of the underlying conditions rectify themselves. Either flooding of the streams or less unemployment, or both are the only things that will cause this market to move upward.

Menthol Easy on Spot

Menthol is lower in the spot market at from $3.75 per lb. to $4.00, with reports, however, that the Japanese market is very firm and that business is being placed there at $4.00 for shipment. It is interesting to note, therefore, that this indicates that the spot market is at about 25c per lb. below the present cost of replacement. It is reported that this condition has not occurred for many years.

The principal reasons for conditions prevailing in the spot market is the lack of active business and the number of holders of menthol who are very actively competing with each other. There is not an accumulation of supplies here but available goods are distributed among a larger number of holders, a situation that usually results in increased competition, especially in a market in which buyers are not any too numerous.

Agar Production Smaller

Agar agar production in Japan is reported as smaller although supplies in the primary market are ample and sufficient to meet any consuming demand that may develop. Prices remain unchanged at the prevailing spot market schedule of from $1.10 to $1.15 for No. 1, and from $1. to $1.05 for No. 2.

Imports of agar agar into the United States, having varied considerably during recent years, registered a decline in 1930. Imports during the past five years were as follows: 1926, 465,800 pounds, valued at $320,600; 1927, 360,100, $229,800; 1928, 373,800, $273,600; 1929, 560,700, $435,100; and 1930, 398,600, $305,600.

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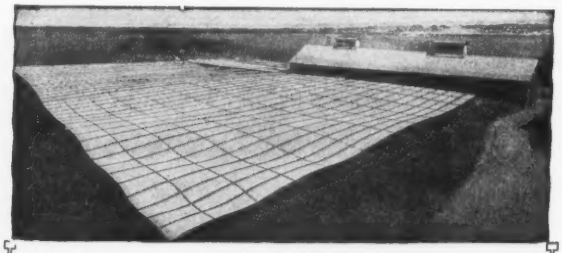

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Arabic Gum Off to 10½ c

Gum arabic is lower on the spot for all grades with amber sorts selling here at from 10½c to 11 c per lb. This reflects the weakness in the primary market due primarily to the fact that collections of gum are running well ahead of the figures for the past several years.

What with production increasing, and demand in the larger consuming countries showing a general decrease, the market in general is weak. Weather conditions continue warm, and therefore favorable to the collection of the gum. The collection season extends up until some time in July, or until the rainy season sets in. Gum will therefore continue to arrive in Kordofan for several months yet, so that there is every likelihood that this season will see one of the largest collections in recent years.

Below is a tabulation of production in tons for the past six seasons.

	1930-31 Tons	1929-30 Tons	1928-29 Tons	1927-28 Tons	1926-27 Tons	1925-26 Tons
Nov.	510	254	133	15	163	20
Dec.	1884	1505	1277	1378	1003	800
Jan.	2887	1541	1928	2828	1780	1376
Feb.	2800	1525	2034	3547	2218	1668
Mar. (1-13)	1447	618	865	1453	946	1058
Total	9528	5443	6237	9221	6110	4922

Assistant Trade Commissioner Gabriel D. Ferrante, Cairo, reports that the total exports of gum arabic from the Anglo-Egyptian Sudan amounted to $4,903,800 in 1930, which represented an increase of 43 per cent over 1929. Great Britain was the leading purchaser of the 1930 shipments being the destination of 3,935 tons valued at $1,000,000. The United States was second, purchasing 3,890 tons, valued at $949,000 followed by France and Germany whose purchases amounted to 3,307 tons valued at $765,700, and 3,059 tons valued at $726,800, respectively.

It will be noticed from the above that exportation of gum to the principal consuming countries has increased during the past year. With business in general being curtailed, consumption of this item has decreased, so it is logical to assume that stocks in this country are more than ample to supply the demand, so that the producing centers are bound to feel the pinch of greatly augmented supplies with a decreased request from the principal consuming countries.

Chamomiles Continue Scarce

Hungarian chamomile flowers continue the upward trend first noticed about two months ago. Quotations on spot are 24c and 25c per lb., a new high figure for this year. These high prices are due almost entirely to the scarcity occasioned by the high percentage of rejections by the Department of Agriculture. The Department continues to reject this commodity because of excessive foreign organic matter. Rejections for the week ending April 1, totaled 96 cases, and for the week ending April 8, 59 cases. Several hundred cases have been detained since the first of the year.

There is every likelihood that prices will advance to still higher levels until such time as a new crop can be gathered. This will not be before May or June. Because of the high precentage of rejections, shippers abroad are disinclined to send any more stocks from the last crop. Ultimately this situation will communicate itself to the consumer with the result of still further aggrevating the situation.

Spanish Saffron has resumed the advance which had been interrupted during the February decline. The market here has again been put up to the basis of from $11.75 to $12 per lb. The crop, which has been unsatisfactory both as to quality and quantity, continues as the predominating factor in the situation. The setback noticed in the early part of March was reported due to the failure of demand to remain up to normal. However, demand has again improved and with it the resumption of strength in this commodity. Unsold stocks here are reported as small.

Bourbon Vanillas Rise Sharply

TO the general surprise of the trade, Bourbon vanilla beans advanced quite sharply during the past month reaching spot levels of $1.25 to $1.75 per pound as to grade. The reason for the sudden rise seems to lie in the report that one American dealer in Bourbon beans has slowly been buying up distressed in France until the point was reached at which this dealer and the French banks were the only holders of any quantities of merchandise. When this point was reached the market rose to the point at which these holders would accept orders. Thus the rise does not appear to be based upon any change in the statistical position of vanilla. There is still an over-supply of Bourbon beans, and there is still another crop directly ahead.

In the opinion of some, the rise in the market—which strangely enough was accomplished without any of the complicated schemes recently suggested—has been rather ill-timed from the point of view of those who are holding the beans. The rise, it is suggested, will encourage the planters of the beans to fecundate their flowers and thus assure another good-sized crop. If the rise in price were delayed six weeks longer it would then be too late to fecundate the flowers, it is stated, and the coming crop then would be much smaller in size. Thus the holders of the beans would have a firm market of much surer stability ahead of them.

Unless the control of the present supplies of Bourbon beans is absolute, it appears that the price advance will be subject to at least temporary declines. And if the advance stimulates production of vanilla to any appreciable extent, the new crop can do nothing else than again flood the market with goods.

Mexican beans, on the other hand, continue in a firm position with no free offerings being made. It appears certain that the bulk of the Mexican crop is under the definite control of firm hands who have temporarily withdrawn from the market. Perhaps it is the intention of these holders of the new crop to wait until the part of the crop out of their control is sold so that they can dominate the market. At any rate the quotation in effect for Mexican whole beans now seems to be $5.00 per pound.

Some vanilla interests point out the spread between Mexican beans at $5.00 per pound, and Bourbon beans at $1.25 per pound, stating that the differential is out of all proportion to the relative value of the beans and that the Bourbons must advance or the Mexicans must decline. But it seems to be a fact that these two markets are quite independent of each other just so long as there are not more than enough of the Mexican beans to go around.

Senega Root Steady

Senega root shows a fair demand with price stability noticed. The market continues unchanged at from 65c to 70c per lb. This is a comparatively low price for this commodity, in fact it presents a figure at which the article is unprofitable to collect. The previous price declines have, therefore, had the effect of reducing production which has been a stabilizing influence.

Consul General P. S. Heintzleman, Winnipeg, reports that the estimated quantity of senega root collected in Canada in 1930 is 125,000 pounds as compared with 750,000 pounds in 1929. A price decline of 55c a pound has occurred since 1929.

Senega root is gathered chiefly in the Provinces of Manitoba, Saskatchewan, and Alberta. The largest amount comes from Saskatchewan. The root is collected in the summer, mainly by the Indians, and is prepared for market by being washed and dried in the sun. It is bought by individuals who visit the Indian camps for the purpose. These buyers in turn sell to dealers in the larger cities of the Prairie Provinces.

Buchu quotations remain unchanged at from 23c to 25c per lb. with reports, however, that the undertone is not particularly strong. There is some question as to whether the market can be maintained at the present levels as demand has not improved.

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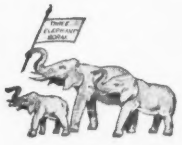

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Citronella oil Java is stronger due to the higher replacement costs for the material. Spot quotations in drums are at from 54c to 56c per lb., with the oil in tins offered at from 56c to 58c per lb. Enough business is reported here to make the commodity firm at the outside level.

Due to the geraniol content of this grade of oil, it is reported that to a certain extent, it has been affected by the very strong position of Bourbon Geranium. Ceylon oil, however, failed to be influenced by the strength of the Java and remains unchanged.

Consul Stillman W. Eells, Colombo, reports that exports of Citronella oil from Ceylon during 1930 amounted to 1,213,542 pounds valued at $473,780, as compared with 1,183,240 pounds valued at $441,500 exported during 1929, and 1,200,000 pounds worth $376,775 shipped during 1928. The United States and Great Britain are the leading purchasers of Ceylonese citronella oil. The United States, however, has increased its share of the trade from 33 per cent. in 1928 to 40 per cent. in 1930, while Great Britain purchased in 1930 only 25 per cent. as compared with 30 per cent. in 1928. Germany, Australia, and British India are the only other important markets.

Citronella oil is produced in the Southern Province of Ceylon mainly by small native growers who do their own distillation and sell their output to Ceylonese brokers in Matara on laboratory test. The oil is stocked in Matara and sold in quantity to European brokers and buyers in Calle and Colombo, although at present almost the entire output is shipped from Colombo.

Clove Oil Firm

Clove oil is in a firm position due to the fact that raw material is scarce and higher. No change is noted in scheduled prices. Demand has not improved which is probably the reason why prices have not been put up. Production cost, however, being higher an increase in activity in either market would be the forerunner to an advancement.

Cedarwood continues high on spot with the material offered at from 37c to 39c per lb. with no indications of shading from these levels. Production in the primary market is still at a very low ebb with cost to replace the material high and firm.

Lemongrass Oil Demand Small

Lemongrass is in small demand at present with the market weak. Prices for this commodity have been reduced during the month to 65c and 67c per lb., a reduction of 5c per lb. This is a competitive item and there is a possibility that for firm business of quantity slightly better than the above prices could be done.

Vice Consul L. R. Stuyvesant, Madras, reports that lenongrass oil exports from India to the United States through the port of Madras, which governs a substantial share of the trade, declined approximately 50 per cent. in quantity and value during 1930, the figures being 118,000 pounds valued at $69,500, as against 219,000 pounds valued at $140,000 for 1929.

Tansy is another one of the American oils that have felt the pressure of the approaching season for planting and the starting of new crops. The oil is obtained from the primary at constantly lower levels and is offered in the spot market at a price considerably below that prevailing a month ago. Spot quotations are at from $2.75 to $2.85 per lb.

Consul Henry S. Waterman, Saigon, reports that Star aniseed oil is native to French Indo-China in the Province of Langson, Bonkin, along the Tonkin-Chinese border and in the Chinese Province of Kwangsi. This oil is the most important from a commercial standpoint in Indo-China and is extracted from the fruit cultivated by the natives on both sides of the Bonkin-China frontier.

Cubeb Berries Firm

Cubeb berries are reported as firm at the prevailing market of from 32c to 33c per lb. Indications were to the effect that supplies on spot have been over-estimated and that there is not available more than is sufficient to take care of requirements.

Exports of cubeb from Malaya to the United States increased considerably during 1930, amounting to 75,625 pounds valued at $22,272, as compared with 49,856 pounds valued at $15,078 for 1929. As compared with the figures for 1928, however, there was registered a decline of 68,404 pounds. Shippers attribute the revival in 1930, to the fact that large stocks sent to the United States in 1928 have been liquidated.

The most active season for eucalyptus oil is now past and the market has taken on a dull turn with an easier tendency in prices noticed. There are no official changes in schedule but competition for what business still remains to be picked up has resulted in some shading below official quotations.

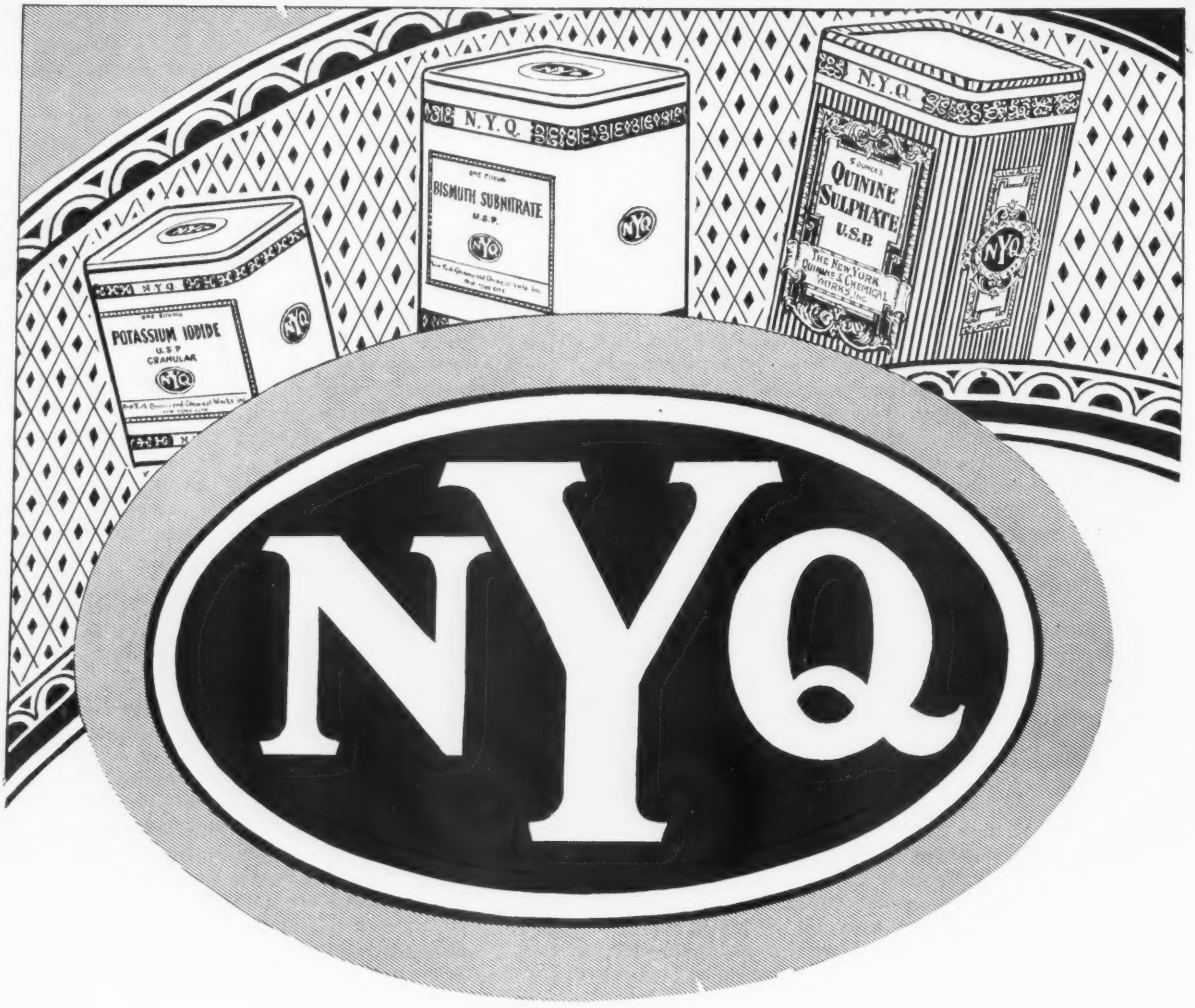
Consul General John A. Gamon, Marseille, reports that the United States took an increased quantity of psyllium seed from France in 1930, according to French export statistics which indicate shipments to the United States of 2,026,600 pounds valued at $464,500, as compared with 987,500 pounds worth $154,000 in 1929.

Bismuth metal and salts continue in a strong position after the increase noted in our previous issue. No new price developments are noted but a firm undertone for both the metal and the salts prevail. Demand has not changed with reports that the metal is being well absorbed into industry.

Iodide Prices Unchanged

Iodine and iodides continue to sell at unchanged prices. Producers report a steady but practically unchanged demand. While imports of iodine have declined in volume, this does not indicate any decline in consumption which is reported to have increased by approximately eight per cent. The deficiency in imports is being made up by the domestic iodine produced on the Pacific Coast.

Hong Kong is an important Far Eastern trading and transshipment center for aniseed oil produced in South China and French Indo-China. Imports of aniseed oil into Hong Kong during the nine months, April to December, 1930, amounted to 265,070 pounds valued at $145,000. South China accounted for about 60 per cent. of the trade and French Indo-China 40 per cent., receipts from China arriving mainly from April to July and from Indo-China from September to December. Aniseed oil is reexported from Hong Kong in both drums and cases, exports in drums amounting during the last nine months of 1930 to 142,800 pounds valued at $81,900, of which over 50 per cent. was destined to the United States and the remainder to the United Kingdom, Germany, and Spain. Shipments in cases during the same period totaled 128,080 pounds valued at $61,030 exported mainly to the United Kingdom and Germany. Comparable statistics for previous periods are not available since the Hong Kong Statistical Bureau was reestablished in the early part of 1930 and statistics are only available since April 1, 1930.



Acetanilid	Cinchonidine	Quinidine
Bismuth Subnitrate	Morphine Sulphate	Thymol
Bismuth Subcarbonate	Ethyl Morphine	Salicylates
Cinchonine	Iodoform	Strychnine
Cinchona Alkaloids	Glycerophosphates	Bromide of Soda
Cinchophen	Opium	Bromide of Potash
Codeine Sulphate	Potassium Iodide	Bromide of Ammonia
Codeine Phosphate	Quinine Sulphate	Silver Salts

Menthol-Y (trade mark reg.) Vanillin

In bulk for manufacturers and in packages for wholesale trade

THE NEW YORK QUININE & CHEMICAL WORKS INC.

GENERAL OFFICES

99-117 North Eleventh Street, New York, Borough of Brooklyn

ST. LOUIS DEPOT, 304 SOUTH 4TH ST., ST. LOUIS, MO.

Prices Current

Medicinal, Aromatic, and Photographic Chemicals, Crude Drugs, Spices, Essential Oils and Concentrates, Miscellaneous Raw Materials, etc.

Chemical prices quoted are of American manufacturers, spot New York, f. o. b. for immediate shipment, unless otherwise specified.

Products sold f. o. b. works are so specified. Imported chemicals are so designated. Resale stocks, when a market factor, are indicated "second hand."

Crude Drugs and Essential Oils are quoted f. o. b. New York (Manhattan with limitations) for immediate shipment

The range of price given is not "bid and asked," but are prices of different sellers, based on varying grades and/or quantities. Containers named are original packages most commonly sold.

Chemicals

Acetanilid
Hyoscyamine Sulfate

Acetanilid, USP, 200 lb bbls..lb	.24	.25
Acetone, pure 350 lb drs wks..	.12	.14
Acetphenetidin, 225 lb bbls..lb.	1.25	1.30
ACID, Acetylsalicylic, 225 lb bbls.	.85	.90
Agaric, 1 oz vials.....oz	...	3.50
Arsenous, USP, 220 lb bbls lb.	...	.18
Benzoic, USP, 100 lb bbls.lb.	.60	.61
Boric, 300 lb bbls.....lb.	.09½	.10
Cacodylic, 5 lb. bot.....lb.	...	8.00
Camphoric, USP, VIII 1 lb bot.....lb.	4.82	4.82
Carbolic, USP, crys 112 lb tins.....lb.	.17	.18
Cinnamic, 5 lb cans.....lb.	3.25	3.50
Citric, USP, crys 230 lb bbl .....lb.	...	.37
USP, crys imp. 112 lb keg .....lb.	.41	.43
USP, powd 200 lb bbl...lb.	...	.37½
Diethylbarbituric, 1 lb bot lb.	4.00	4.50
Gallic, USP, 150 lb bbls..lb.	...	.74
Glycerophosphoric, 25% 1 lb bot.....lb.	1.40	1.75
Hydriodic, USP, 10% 5 lb bot.....lb.	...	.70
Hydrobromic, USP, 40% 155 lb. cbys.....lb.	...	.55
Hypophosphorous, USP, 30% .....lb.		
5 gal demis.....lb.	...	.85
Lactic, USP, VIII 100 lb cbys lb.....	.53	.59
USP, X 100 lb cbys.....lb.	.57	.59
Phenylcinchonic.....lb.	...	3.25
Phosphoric, USP, Syr 70 lb drs.....lb.	.14	.15
Pyrogallic, crys 5 lb cans..lb.	1.30	1.40
Resublimed, 5 lb cans...lb.	1.60	1.70
Salicylic, USP, 100 lb bbls.lb.	.40	.45
Stearic, double pressed, bags .....lb.	.12½	.13
Triple pressed, bags,....lb.	.14½	.15
Succinic, 100 lb bbls.....lb.	...	1.35
Sulfurous, USP, 6% 100 lb cbys.....lb.	.05	.06
Tannic, USP, fluffy 50 lb bbls. .....lb.	.90	.93
Powd 200 lb bbls.....lb.	.80	.85
Tartaric, USP, 300 lb bbls.lb	.32	.33
Aconitine, Alk, crys 1 oz vials .....oz.	...	30.00
Amorphous, 1 oz vials....oz.	...	20.00
Adeps Lanae, hyd 350 lb bbls lb.	.14½	.15
Anhydrous, 350 lb bbls....lb.	.15	.16
Agaricin, 1 oz vis incl.....oz.	...	2.32
ALCOHOL, Benzyl, 5 lb bot lb.	1.20	1.35
Ethyl, USP, 190 pf 50 gal bbls.....gal.	2.69½	2.79½
Pure tax free.....gal.	.61	.69
Grain drums.....gal.	2.69	2.79
Denatured, (drums included) add 5c for bbls.		
No. 1 spec.....gal.	.27	.35
No. 5 comp.....gal.	.27	.35
23 a, spec.....gal.	.30	.38
39 b, spec.....gal.	.39	.47
40 m, spec .....gal.	.33½	.42½
Isopropyl refd 98-99% drs .....gal.	.95	1.25
Phenylethyl, 1 lb bot.....lb.	4.30	4.50
Aloin, USP, 100 lb cases....lb.	1.73	1.78
Aluminum Acetotartrate kegs .....lb.	...	1.60
Amidipyrine, 10 lb boxes....lb.	4.25	4.45
AMMONIUM, Acetate 100 lb kegs.....lb.	.38	.40
Benzoate, USP, 1 lb bot...lb.	...	1.27
Borate, 10 lb bot.....lb.	...	.35
Bromide, USP, 450 lb bbls.lb.	.38	.39
Imported, 112 lb boxes..lb.	.39	.41
Carb, USP, lump 100 lb kegs .....lb.	...	.13½
USP, powd 100 lb kegs..lb.	...	.14½
Citrate, 100 lb kegs.....lb.	.90	1.30
Ichthyolate, as to brand..lb.	4.00	4.50
Iodide, USP, 25 lb jars...lb.	...	5.20
Phosphate, dibasic 250 lb bbls .....lb.	.48	.50
Salicylate, USP, 100 lb kegs .....lb.	1.15	1.20
Valerate, USP, 25 lb jars...lb.	2.75	2.90
Amylene Hydrate, 1 lb bot..lb.	...	7.10
Antipyrine, USP, 100 lb cans.lb.	2.25	2.60
Apomorphine Hydrochloride, ¼ oz. vials.....oz.	22.60	22.70
Arecoline Hydrobrom, 1 oz vials .....oz.	7.75	8.75
Aspidospermine Amorphous.oz.	...	15.00
Atropine Alk, USP, 1 oz. vials .....oz.	6.50	7.00
Methyl bromide, 1 oz vials.oz.	...	25.00
Sulfate, 5 oz cans.....oz.	...	2.50
Single ounce.....oz.	...	3.00
Barium Iodide, 5 lb box.....lb.	...	5.15
Sulfate, X-ray diagn bbls..lb.	.09½	.10
BAY RUM Porto Rico, 45 gal. bbls.....gal.	.75	.80
Domestic syn, 50 gal bbl..gal.	.70	.75
St. Thomas, 50 gal bbls...gal.	.80	.90
Benzonaphthol, 5 lb boxes...lb.	2.50	2.60
Benzoyl Cholride, 500 lb dr..lb.	1.00	1.05
Benzyl Benzoate, Medicinal FFC.....lb.	1.20	1.40
Chloride Redis, 160 lb cby.lb.	.30	.35
Formate, 1 lb bot.....lb.	3.25	3.50
Succinate, 160 lb cby.....lb.	...	5.25
BISMUTH, metal 100 lb cases .....lb.	...	1.40
Ammon. Citrate, USP, 5 lb cans.....lb.	...	3.25
Betanaphtholate, 5 lb box.lb.	...	2.90
Citrate, USP, 5 lb cans....lb.	...	2.60
Chloride..... .....lb.	...	3.00
Hydroxide .....lb.	...	2.90
Nitrate, 25 lb jars.....lb	...	1.25
Oxide anhydrous.....lb.	...	3.25
Oxychloride, 25 lb boxes...lb.	...	2.95
Salicylate, 25 lb boxes.....lb.	...	1.65
Subcarbonate, USP, 25 lb boxes.....lb.	1.70	1.75
Subcarbonate, X-ray diag 1 lb. bot.....lb.	2.65	2.72
Subgallate, USP, 25 lb boxes .....lb.	1.75	1.80
Subiodide, 5 lb lots.....lb.	...	4.10
Subnitrate, USP, 25 lb jar.lb.	1.50	1.55
Subsalicylate, USP, 25 lb boxes.....lb.	2.55	2.60
Tannate.....lb.	...	2.30
Borax, crys USP, 400 lb bbls.lb.	...	.06
Bromoform, USP, 5 lb bot cases .....lb.	1.65	1.90
Butylchloral Hydrate bot....lb.	4.00	5.00
Cadmium iodide, 10 lb bot...lb.	...	4.55
CAFFEINE Alk, USP, 1..... 100 lb kegs.....lb.	2.45	2.50
Citrated, 50 lb cans.....lb	2.20	2.45
Hydrobromide, 1 lb bot...lb.	4.80	5.00
Hydrochloride, 1 lb bot...lb	6.05	6.55
Sulfate, 1 lb bot.....lb.	5.40	5.90
Sodium Benzoate, tins....lb.	...	3.05
Salicylate, tins.....lb.	...	2.95
Calcium Bromide, 100 lb cs..lb.	...	.60
Carb, USP, 175 lb bbls....lb.	.05	.06
Glycerophos, 250 lb bbls...lb.	...	1.40
Hypophos, USP, 25 lb cans lb.	.55	.60
Iodide, 5 lb bot.....lb.	...	4.85
Lactate, USP, 500 lb bbls lb.	.45	.50
Lactophosphate Soluble...lb.	...	1.20
Powdered tins.....lb	...	1.00
Insol, powd tins.....lb.	...	.50
Phosphate & Sulfate Tooth Paste grade, Works..lbs.	.03	.06
Sulfide, USP, 100 lb drs...lb.	.21½	.24
CAMPHOR, Jap. ref. slabs 100 lb. cases.....lb.	.54	.55
Refined powd.....lb.	.55	.56
½ oz tab, 100 lb cases....lb.	.67	.68
Liniment, bbls.....gal.	2.20	2.30
Monobrom, 100 lb cases...lb.	1.85	1.90
Casein edible, 100 lb kegs...lb.	.45	.55
Charcoal Animal medicinal jars incl.....lb.	...	.50
Charcoal Wood, powd, 100 lb. bbls.....lb.	.06	.07
Chloral Hydrate, USP, 25 lb jars.....lb.	.78	.80
100 lb drums.....lb.	.73	.75
Cholesterin.....lb.	5.50	5.85
Chloroform, USP, 50 lb drs...lb.	.25	.27
Chlorophyll, 1 lb. bot.....lb.	2.12	2.30
Chromium Sulfate Scales, tins .....lb.	.45	.50
Powdered tins.....lb.	.50	.55
Chrysarobin, 50 lb tins.....lb.	3.75	4.10
Cinchonine Alk, 100 oz tins.oz.	...	.38
Crystal.....oz.	.43	.46
Sulfate, 100 oz tins.....oz.	...	.25
Cinchonidin Sulfate, 100 oz tins .....oz.	.35	.35
Cincophen, U.S.P. bbls.....lb.	3.25	...
boxes, drms., kegs.....lb.	3.35	3.50
Cocaine Alk, USP, 1 oz vial..oz.	...	11.07
Hydrochloride, USP,.....oz.	...	8.50
CODEINE Alk, 1 oz vials, 10 lots.....oz.	...	10.37
Hydrobromide.....oz.	...	8.92
Hydrochloride.....oz.	...	10.87
Nitrate, oz vl 10 oz lots....oz.	...	9.80
Phosp. oz vl, 10 oz lots....oz.	...	7.92
Salicylate.....oz.	...	8.25
Sulfate, oz vl, 10 oz lots...oz.	...	8.35
Colchicino Alk, USP, 1 oz vl.oz.	...	20.00
Salicylate, 1 oz vls.....oz.	...	35.50
Cream Tartar, USP, 300 lb bbls .....lb.	.24	.24½
Imp. powd. 224 lb bbls....lb.	.24½	.25
Creosote, USP, 42 lb cbys....lb.	.45	.47
Carbonate, 150 lb.....lb.	1.50	1.60
Cresol, USP, 400 lb drums...lb.	...	.20
500 lb drums.....lb.	.14	.17
DIGITALIN Pure, 1 oz vial..oz	15.00	15.50
Dover's Powder, USP, 5 lb tin .....lb.	2.75	2.80
Duboisine Sulfate, 1 oz vl....oz.	35.00	40.00
Emetine Alk, 15 gr vial.....oz.	...	.85
Hydrochloride, USP, 1 oz vl .....oz.	25.00	26.00
15 grain vials.....oz.	2.50	2.70
Epsom Salts, USP, 200 lb bbls .....100 lb.	2.25	2.50
Imp. 100 lb bbls.....100 lb.	2.30	2.35
Ergotin Bonjean, 1 lb jars...lb.	18.50	19.00
Eserine Alk, 1 oz vials.....oz	...	50.00
Salicylate, 1 oz vials.....oz.	...	40.00
Sulfate, USP, VIII 1 oz vials .....oz.	...	40.00
ETHER, USP, 55 lb drums..lb.	...	.12
Anaesthesia, 55 lb drums..lb.	.21	.23
Nitrous, 1 lb bot.....lb.	...	.80
Ethyl Chloride, 200 lb bot...lb.	.22	.24
Ethyl Iodide, 5 lb bot.....lb.	...	6.25
Formaldehyde, USP, 100 lb cbys lc-l wks.....lb.	.07	.07½
Gall Extract.....lb.	.20	.21
GLANDULAR SUBSTANCES Duodenal Substance, 1 lb lots	...	5.50
Liver Substance (Hepatic) 1 lb lots.....	...	4.50
Orchic Substance (Testicular)	...	4.75
Ovarian Substance, whole, 1 lb lots.....	...	26.00
Ovarian Residue, 1 lb lots....	...	20.00
Pituitary Substance, whole 1 lb lots.....	...	40.00
Pituitary Substance, Anterior Lobe, 1 lb lots.....	...	27.00
Thyroid, U. S. P., 1 lb lots...	...	4.75
Oxgall Powder, 1 lb lots....	...	1.35
GLYCERIN, CP, 550 lb drums .....lb.	...	12½
Gold Chloride, bottles.....oz.	12.00	12.50
Guaiacol, liq. USP. 100 lb cbys.....lb	1.65	1.75
Crystals.....lb	2.25	2.50
Benzoate, 1 lb bottles.....lb.	...	13.00
Carbonate, 5 lb boxes.....lb.	1.70	2.50
Halazone, 5 lb bot.....lb.	2.75	3.25
Hexamethylenetetramine, USP, 100 lb dr.....lb.	.46	.47
Homatropine Hydrobrom USP. .....oz.	...	14.50
5 oz and 1 oz vials.....oz.	...	13.50
Hydrastine Alk, USP, 1 oz vial .....oz.	20.50	21.00
Hydrochlide, USP, 1 oz vials .....oz.	20.50	21.00
Sulfate, 1 oz vial.....oz.	22.50	23.00
Hydrastinine Hydrochloride, USP, 15 gr vials.....oz.	...	40.00
Hydrogen Peroxide, USP, soln 375 lb bbls.....lb.	.03½	.04½
Hyoscine Hydrobrom, USP, 1 oz vials.....oz.	13.07	35.00
5 oz, 1 oz vials.....oz.		13.57
Hyoscyamine Alk, crystals, 1 oz vials.....oz.	...	25.07
Amorphous, 1 oz vial...oz.	...	75.07
Hydrobromide, USP, 1 oz vial .....oz.	...	25.00
Sulfate, 1 oz vial.....oz.	...	25.07

Purity

The U. S. P. X. provides four safeguards for buyers of PETROLATUM LIQUIDUM. They are tests for ACID, ALKALI, SULPHUR COMPOUNDS and CARBONIZABLE substances. ALBINOL Genuine Imported Mineral Oil tests as follows:

ACID NEGATIVE

ALKALI NEGATIVE

SULPHUR COMPOUNDS NEGATIVE

CARBONIZABLE Substances PASSES GOOD

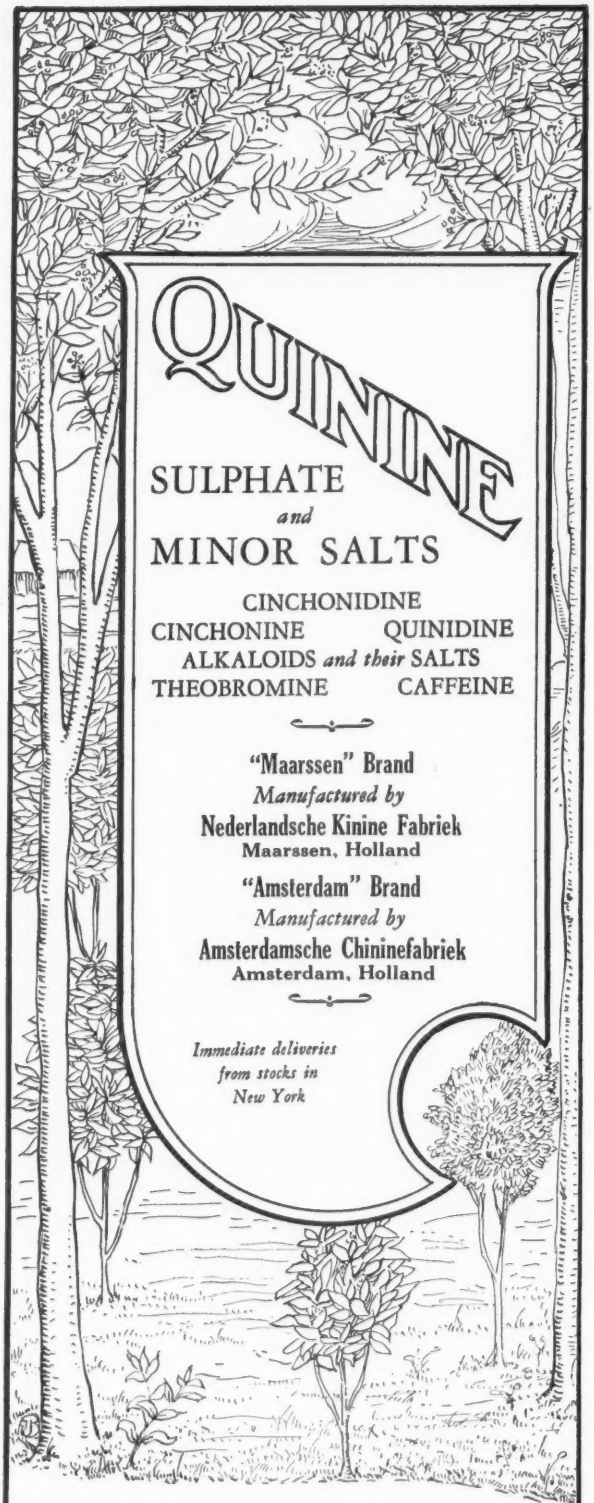
The latter test is probably the most *important.* The U. S. P. X. prescribes in the last named test that the C. P. Sulphuric Acid used in the test must not turn darker than "Pale Amber" and that the OIL remain unchanged in color.

In testing "ALBINOL" the C. P. Sulphuric Acid used does not even approach a "Pale Amber" and except for a "slight haze" *remains the same color as originally.* It is therefore **MUCH BETTER** than U. S. P. A comparative test against other oil is welcomed.

Schliemann Companies, Inc.

53 Park Place, New York, N. Y.

REFINERY IN HAMBURG, GERMANY



R. W. GREEFF & CO., Inc.

10 East 40th Street New York

Chemicals

Hypoquinone, 100 lb kegs...lb.	...	1.20
ICHTHYOL, tins.....lb.	4.00	4.25
Iodide Arsenous, 5 lb bot...lb.	...	5.20
Arsenous-Mercuric soln, 5 lb bot.....ql	...	.26
Iodine, crude, 200 lb kegs...lb.	4.35	4.35
Resublimed, 10 lb tars...lb.	4.65	4.70
Tincture demis.....gal.	...	4.85
Iodoform, powd 10 lb bot...lb.	...	6.50
Iron & Ammonium Citrate, USP, 50 lb cans.....lb.	.65	.66
Chloride, USP, lump 400 lb bbls.....lb.	.06	.08
Citrate, USP, VIII 25 lb can .....lb.	.94	1.01
Hypophosphite, 5 lb cans..lb.	1.55	1.65
Iodide, 1 lb bottles.....lb.	...	4.28
Phosphate, USP, 50 lb cans .....lb.	...	.69
& Potas Oxalate, 250 lb bbl .....lb.	...	.45
Pyrophosphate, USP, 50 lb .....lb.	.74	.80
& Sod Oxalate, 24 lb box...lb.	...	.30
Sulfate, USP, crys bbls....lb.	.04	.04½
Ferrous dried bbls.....lb.	...	.08
Valerate, tins.....lb.	2.75	3.00
Jalap Resin, USP lumps, 5 lb tins.....lb.	...	4.00
Powdered, tins.....lb.	...	4.65
Lead Acetate, USP, 100 lb kegs .....lb.	.16½	.19½
Iodide, USP, VIII 5 lb bot.lb.	3.20	3.40
Lecithin, 5 oz jars.....oz.	1.00	1.30
Licorice Ext Mass, cases....lb.	.19	.20
Compound powder, bbls...lb.	.11	.13
LITHIUM CARBONATE, 250 lb bbls.....lb.	1.35	1.45
Citrate, USP, 100 lb kegs..lb.	...	1.70
Iodide, 5 lb bottles.....lb.	...	5.65
Lobeline Sulfate, ¼ oz vial...oz.	...	8.75
Magnesium Carbonate, USP, 100 lb bbls.....lb.	.08	.09
English, oz blocks.....oz.	.16	.18
Glycerophosphate, 5 lb tins .....lb	3.20	3.25
Hypophosphite, 5 lb cans..lb.	1.15	1.20
Salicylate, 100 lb kegs.....lb	...	1.10
Stearate, bbls.....lb.	.23	.25
Manganese Glycerophosphate, 5 lb tins.....lb.	2.90	3.00
Hypophosphite, USP, VIII 5 lb cans.....lb.	1.35	1.40
Iodide, 1 lb bottles.....lb.	6.40	6.65
MENTHOL, USP, 60 lb cases .....lb.	3.75	4.00
Synthetic, cases.....lb.	3.00	3.25
Mercury Metal, 75 lb flasks...fl.	101.00	102.00
Bichloride, crys 25 lb box..lb.	...	1.61
Gran powd, 100 lb kegs..lb.	...	1.46
Bisulfate, 25 lb boxes.....lb.	...	1.48
Blue Mass, 25 lb boxes....lb.	...	.95
Powd, 25 lb boxes.....lb.	...	.96
Blue Ointment, USP, 50%, 25 lb cans.....lb.	...	1.19
Mild 30%, 25 lb cans....lb.	...	.86
33 1/3% mercury.....lb.	...	.94
Calomel, 50 lb boxes.....lb.	...	1.82
English.....lb.	2.75	2.80
Iodide, green, 25 lb jars....lb.	...	4.80
Red, USP, 25 lb jars...lb.	...	4.89
Yellow, USP, VIII, 25 lb jars.....lb.	4.80	4.80
Red precip, USP, 25 lb boxes .....lb.	...	2.06
Powd., USP, 25 lb boxes.lb.	2.17	2.17
White precip, USP, 25 lb boxes.....lb.	...	2.00
Powd., USP, 25 lb boxes.lb.	...	2.01
Salicylate, 25 lb bot.....lb.	...	2.32
With chalk, USP, 25 lb boxes .....lb.	...	.93
Methanol, Pure 1c-1 drs....gal	...	.44
Methyl Salicylate, USP, 50 lb cans.....lb.	.40	.42
Methylene Blue, USP, med 5 lb cans.....lb	2.00	2.05
Milk powd, 150 lb bbls.....lb.	.09	.12
MORPHINE Alk, 5 oz tin...oz.	10.90	10.95
Acetate, 5 oz tins.....oz.	8.75	8.80
Hydrobromide, 5 oz tins, 10 oz lots.....oz.	8.75	8.80
Hydrochloride, 5 oz tins, 10 oz lots.....oz.	8.75	8.80
Ethyl Hydrochloride, 5 oz tins 10 oz lots.....oz.	...	10.85
Sulfate, 5 oz tins, 10 oz lots .....oz.	7.95	8.10
Naphthalene Flake, 175 lb bbls wks.....lb.	.04½	.05
Balls, 250 lb bbls wks.....lb.	.05½	.06
Oxgall, Purified, 5 lb bot....lb.	1.75	2.50
USP, 5 lb bot.....lb.	2.00	2.50
Oxyquinoline Sulfate, tins...lb.	8.50	9.25
Pancreatin, USP, 100 lb.....lb.	...	1.90
Paraffin, refd, 200 lb cs slabs 118-120 deg MP.....lb.	.08	.09
128-132 deg MP.....lb.	.07½	.07¾
Para-Aldehyde, USP, 100 gal drums.....lb.	.67	.77
Pepsin, USP, 100 lbs. 1:3000.lb.	...	2.25
100 lbs. 1:6000.....lb.	...	4.00
100 lbs. 1:10000.....lb.	...	6.50
Peptone, powd, 5 lb bot.....lb.	...	...
PHENOLPHTHALEIN, USP, 100 lb drums.....lb.	1.00	1.10
5 lb cans 100 lb lots..lb.	1.13	1.20
Pilocarpine Hydrochloride, USP, 1 oz vials 25 oz lots .....oz.	...	3.25
Nitrate, 25 oz lots.....oz.	...	3.25
Single ounce.....oz.	...	3.50
Alkaloid, 15 gr vials.....vl.	...	.75
Piperazine Hydrate, 1 lb bot.lb.	...	15.00
Piperadine, 25 oz bottles.....lb.	...	8.00
Popodhyllin 5 lb bottles.....lb.	4.35	4.50
Potassium Acetate, USP, 100 lb kegs.....lb.	.29	.30
Bicarb, USP, crys 320 lb bbls .....lb.	.09½	.10
Bromide, USP, crys 100 lb cs .....lb.	.34	.35
Citrate, USP, 50 lb bbl....lb.	.42½	.43
Guaiacol Sulfonate.....lb.	1.95	2.25
Potassium Hypophosphite, 10 lb. cans.....lb.	.75	.80
Iodide, USP, 100 lb cases..lb.	3.50	3.55
Lactophosphate, 4 ox bot..lb.	...	.90
Permangan, USP, crys, 100 lb drs wks.....lb.	.15	.15½
Phosphate dibasic pure, kegs .....lb.	...	.49
Salicylate, 25 lb cans.....lb.	...	1.18
Sulfate, USP, VIII, 100 lb kegs.....lb.	.13	.15
Sulfocyanide, CP 15 lb jars lb.	...	.50
Tartrate, CP, tins.....lb.	...	.65
Pyrogallol, USP, see Acid Pyrogallic.....	...	...
Quinidine Alk, 100 oz tins...oz.	.70	.75
Sulfate, 100 oz tins.....oz.	...	.50
QUININE SULFATE, USP, 100 oz tins.....oz.	...	.40
1 oz tins, 100 oz lots....oz.	...	.47
Dutch, 100 oz tins.....oz.	...	.40
Java, 100 oz. tins.....oz.	...	.40
Japanese 100 oz tins.....oz.	...	.40
Acetate.....oz.	...	.74
Arsenate.....oz.	...	.76
Benzoate.....oz.	...	.74
Bisulfate, USP.....oz.	...	.40
Resale.....oz.	...	.39
Citrate.....oz.	...	.51
Dicarbonate, 1 oz tins....oz.	...	2.56
Dihydrobromide.....oz.	...	.54
Dihydrochloride, USP....oz.	...	.54
Ethyl Carbonate, 16 oz tins .....oz.	...	.70
Ferrocyanide.....oz.	...	.74
Formate.....oz.	...	.73
Glycerophosphate.....oz.	...	.72
Hydrobromide, USP.....oz.	...	.50
Hydrochlorosulfate.....oz.	...	.50
Hydrochloride & Urea, USP .....oz.	...	.74
Hypophosphite.....oz.	...	.70
Lactate.....oz.	...	.66
Phenolsulfonate.....oz.	...	.78
Phosphate.....oz.	...	.62
Salicylate, USP.....oz.	...	.52
Tannate, USP.....oz.	...	.41
Tartrate.....oz.	...	.74
Valerate.....oz.	...	.78
& Urea Hydrochloride, USP .....oz.	...	.88
Rennet, N. F. 5 lb 1:25,000...lb.	2.95	3.50
Resorcinol, USP, 25 lb cans..lb.	1.72	1.80
Rochelle Salt, USP, 225 lb bbl .....lb.	.19	.19½
Imp. USP, 300 lb bbls.....lb	...	.23
Rock Sugar, 5 lb boxes.....lb.	...	.15
Saccharin, USP, 10 lb cans...lb.	1.70	1.80
USP, Soluble, 10 lb cans...lb.	1.75	1.85
Salicin, USP.....lb.	...	12.50
SALOL, USP, 100 lb drums..lb.	...	.90
Saltpetre, powd, bbls wks....lb.	.06½	.08½
Santonin, USP, bulk.....lb.	123.00	133.00
Saponin, refined.....lb.	1.30	1.50
Siedlitz Mixture, 250 lb bb..lb.	...	.17½
Silver Metal, American.....oz.	...	.42½
Iodide, 16 oz lots.....oz.	...	.69
Nitrate, 100 oz bottles....oz.	.21½	.23½
Nucleinate, bulk.....oz.	...	.37
Proteinate.....oz.	.39	.41
SODIUM BENZOATE, USP, 100 lb bbls.....lb.	.44	.48
Bromide, USP, 100 lb kegs.lb.	.34	.35
Cacodylate, USP, 25 lb bot .....lb.	4.75	5.90
Citrate, USP, X 50 lb kegs.lb.	.34½	.36
USP VIII, 50 lb kegs....lb.	.29½	.31
Glycerophosphate, USP, crys 25 lb cans.....lb.	1.40	1.55
Powder, 25 lb tins.....lb.	1.45	1.60
Soln, USP, 25 lb tins...lb.	1.05	.120
Hypophosphite, USP, 25 lb cans.....lb.	.65	.70
Iodide, USP, 25 lb jars...lb.	4.25	4.30
Phosphate (Mono-Sodium), 100 lb kegs.....lb.	.30	.31
Di-Sodium USP, granular, 275 lb bbls.....lb.	.07½	.08
Pyrophosphate, 100 lb kegs .....lb.	...	.29
Salicylate, 100 lb kegs....lb.	...	.47
Sulfocarbolate, USP, 100 lb kegs.....lb.	...	.25
Sulfocyanate, CP crys, jars included.....lb.	...	.60
Spartein Sulfate, USP, 25 oz bulk.....oz.	.65	.70
Single oz vial.....oz.	.77	.90
STRONTIUM BROMIDE USP, 50 lb kegs.....lb.	.46	.47
Carb, 100 lb kegs wks....lb.	...	.20
Iodide, USP, 25 lb jars....lb.	...	4.00
Lactate, kegs.....lb.	.90	1.10
Nitrate, 600 lb bbls NY...lb.	.08	.08½
Imp. bbls NY.....lb.	.08	.08½
Salicylate, USP, 100 lb keg lb.	...	1.10
Strophanthin, USP, 1 oz vial.oz.	19.00	19.00
Crystals.....lb.	75.00	75.00
Strychnine Alk, USP crys, 100 oz tins.....oz.	...	.61
Powdered.....oz.	...	.51
Acetate.....oz.	...	.65
Arsenate, 25 oz cans.....oz.	...	.65
Glycerophosphite, USP....oz.	...	.65
Hydrobromide.....oz.	...	.65
Hydrochloride.....oz.	...	.65
Hypophosphite.....oz.	...	.75
Nitrate, USP.....oz.	.55	.72
Phosphate.....oz.	...	.65
Sulfate, USP, powd.....oz.	...	.42
Sugar, refined, 275 lb bbl 100 lb	5.80	5.90
Milk, USP, 200 lb bbls...lb.	.18	.20
Sulfonethylmethane, USP, 10 lb boxes.....lb.	3.85	4.05
Sulonmethane, USP, 10 lb box .....lb.	2.65	3.85
Sulfur flwrs. washed, USP, 125 lb bbl.....lb.	...	.06
Iodide, USP, VIII, 5 lb bot lb.	...	4.55
TARTAR EMETIC, USP, 300 lb bbls.....lb.	.32½	.34½
Terebene, tins.....lb.	...	.85
Terpin Hydrate, USP, 100 lb kegs.....lb.	.35	.37
Theobromine Alk, 5 lb cans..lb.	1.90	2.25
Sod. Salicylate, 1 lb bot...lb.	...	2.10
Sod. Benzoate, 1 oz vials..oz.	...	1.00
Thymol, USP, 25 lb tins.....lb.	2.00	2.25
Iodide kegs.....lb.	6.00	7.00
Veratrine Alkaloid.....oz.	...	2.25
Sulfate, 1 oz vials.....oz.	...	2.25
Witch Hazel Ext., 50 gal bbl .....gal.	.60	.80
Zinc Carb, USP, 100 lb keg..lb.	.28	.31
Chloride, USP, 25 jars ex..lb.	.24	.29
Iodide, 5 lb bottles.....lb.	...	5.22
Oxide, USP, 100 lb bbls...lb.	.13	.14
Stearate, USP, 50 lb bbl..lb.	.22	.24
Sulfate, USP, 100 lb bbl..lb.	.08	.09
Sulfocarbolate, 100 lb kegs..lb.	.23	.26

Miscellaneous

Castor Oil, odorless, bbls.....lb.	...	.13½
Chalk drop, 175 lb. bbls.....lb.	...	.03½
Precip. light, 250 lb. cask..lb.	...	.04½
Heavy 540 lb. casks.....lb.	...	.02½
Bulk.....ton	...	5.00
English light, bags.....lb.	...	.04½
English light, casks.....lb.	.05½	...
Cocoa Butter, 12 lb. box....lb.	.42	.45
Cod Liver Oil Nor. 30 gal. bbls	33.00	34.00
Newfoundland.....bbl.	...	31.00
Collodion U. S. P. 30 lb. dr...lb.	...	.23
Corn Syrup 42° 50 gal. bbl. .....100 lb.	3.91	4.16
Gelatin, USP, Silver 100 lb. cases.....lb.	.55	.60
Pure Food, 50 lb. bbl.....lb.	.53	.55
Glucose, (grape sugar) dry 70° bags c-l NY.....100 lb.	3.14	3.24
Haarlem Oil, bot 6 gross cases .....gross	...	3.75
Imported, 5 gr. cs.....gross	...	3.50
Mineral Oil White, 50 gal. bbls. 80-85 vis.....gal.	.50	.55
85-90 vis.....gal.	.65	.70
125-130 vis.....gal.	.75	.85
290 vis.....gal.	.90	1.10
Russian 110-115 vis.....gal.	.69	.79
145-155 vis.....gal.	.72	.82
320-330 vis.....gal.	.80	.90
Olive Oil, Edible bbls.....gal.	2.00	2.40
Paraffin Wax, fully refined, slabs 125 @ 127 A.M.P. bags lb.	...	.03
130 @ 132 A.M.P. bags lb.	...	.04½
135 @ 137 A.M.P. bags lb.	...	.05
Petrolatum, Lily White, USP, 400 lb. bbl .....lb.	.08	.09
Snow White USP, 400 lb. bbls.....lb.	.09½	.10
Rice Starch, 140 lb bags....lb.	.09	.10
Soap Castile, bars 40 lb. Case .....Cs.	...	12.75
Powd. USP 250 lb. bbls....lb.	.26	.28
Green, USP, 450 lb. bbls...lb.	.07½	.07½
Neutral, powd. bbls.....lb.	.17	.18
Talc, Italian, 220 lb bags...ton.	60.00	80.00
French, 220 lb bags.....ton.	40.00	45.00

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Aromatics and Essential Oils

Acetophenene, CP, 1 lb bot	lb.	3.50 3.65
Aldehyde, C 8 (Otcyl) 1 lb bot	lb.	... 50.00
C 7, 1 lb bot	lb.	4.50 5.50
C 9 (Nonyl), 1 lb bot	lb.	... 40.00
C 10 (Decyl), 1 lb bot	lb.	. 48.00
C 14, 1 lb bot	lb.	. 32.00
C 16, 1 lb bot	lb.	... 24.00
AMYL ACETATE, pure, 25 lb cans	lb.	.43 .50
Butyrate, 1 lb bot	lb.	1.25 1.50
Butyrate, 5 lb bot	lb.	... 1.00
Cinnamate, 5 lb bot	lb.	9.50 9.75
Formate, 1 lb bot	lb.	... 1.90
Formate, 5 lb bot	lb.	... 1 75
Phenyl Acetate, 1 lb bot	lb.	4.50 5.00
Salicylate, 100 lb cbys	lb.	1.25 1.30
Imported	lb.	2.25 2.50
Anethol, 2 lb bot	lb.	1.90 2.15
Anisic Aldehyde, 1 lb bot	lb.	4.00 4.50
Benzaldehyde, USP, 40 lb cbys	lb.	... ...
50 lb cbys	lb.	1.45 1.55
FFC, 40 lb cbys	lb.	1.35 1.45
Benzoic Ether, see Ethyl Benzoate		
Benzophenone, 1 lb bot	lb.	4.50 5.00
Benzyl Acetate, 100 lb cbys	lb.	.90 1.10
Alcohol, 5 lb bot	lb.	1.20 1.30
BENZYL BENZOATE	lb.	1.15 1.20
Medicinal, FFC	lb.	... 1.40
Buytrate, CP, 1 lb bot	lb.	9.25 9.50
Benzyl Cinnamate, 1 lb bot	lb.	7.00 7.25
Formate, 1 lb bot	lb.	3.25 3.35
Propionate, 1 lb bot	lb.	3.60 3.75
Succinate, 1 lb bot	lb.	5.25 5.50
Valerate, 5 lb bot	lb.	3.00 3.25
Borneol, 1 lb bot	lb.	2.50 3.00
Bornyl Acetate, 1 lb bot	lb.	2.25 3.35
Bromstyrol, 25 lb cases	lb.	4.50 4.65
Butyl Anthranilate dom, 1 lb bot	lb.	
Carvol, 5 lb bot	lb.	3.60 4.00
Cinnamic Acid, 5 lb cans	lb.	3.25 3.50
Alcohol liquid, 1 lb bot	lb.	3.00 3.10
Crystallizable	lb.	7.00 8.00
Aldehyde	lb.	2.25 2.50
Imported, 1 lb bot	lb.	7.75 9.00
Citral, 25 lb cans	lb.	2.65 4.00
Citronellal 1 lb bot	lb.	2.00 4.00
Citronelyl Acetate, 1 lb bot	lb.	6.00 6.25
Coumarin, 25 lb cans	lb.	3.50 4.00
DECYL ALCOHOL	lb.	25.00 28.00
Diethyl Phthlate see Chemicals		
Diphenyloxide, 25 lb tins	lb.	1.00 1.15
Diphenyl Methane	lb.	1.75 2.00
Duodecyl Alcohol	lb.	20.00 22.00
Ethyl Acetate, pure, 5 lb bot	lb.	.06 .07
Benzoate, 5 lb bot	lb.	1.50 1.75
Ethyl Butyrate, 5 lb bot	lb.	1.80 2.00
Caproate, 1 lb bot	lb.	3.25 3.50
Cinnamate, 1 lb bot	lb.	4.00 4.50
Formate, 5 lb bot	lb.	1.00 1.25
Methyl Paracresol, 1 lb bot	lb.	3.25 3.50
Phenyl Acetate, 5 lb bot	lb.	3.75 4.00
Valerate, 5 lb bot	lb.	... 3.75
Salicylate, 5 lb bot	lb.	1.95 2.00
Eucalyptol, USP, 50 lb cans	lb.	.85 .90
Eugenol, USP, 25 lb cans	lb.	3.50 4.00
Geraniol, 50 lb cases	lb.	2.50 3.10
Geranyl Acetate, 1 lb bot	lb.	3.00 3.05
Butyrate, 1 lb bot	lb.	13.00 13.50
Formate, 1 lb bot	lb.	12.00 12.50
Glyco Ester	lb.	1.00 1.10
Heliotropin, 100-10 lbs	lb.	1.65 1.75
Imported	lb.	1.95 2.05
Hydroxycitronellal, 1 lb	lb.	5.50 7.50
Indol, CP, 1 oz bot	oz.	2.90 3.00
IONONE, 1 lb bot 100%	lb.	5.00 6.00
Alpha	lb.	4.80 5.00
Beta	lb.	5.70 5.75
Methyl	lb.	5.75 6.00
Iso Borneol	lb.	2.25 2.35
Iso Bornyl Acetate	lb.	3.00 3.20
Iso-Butyl Benzoate, 5 lb bot	lb.	2.75 3.00
Iso-Eugenol, 1 lb bot	lb.	3.75 3.80
Iso-Safrol, 1 lb bot imp	lb.	1.75 1.85
Domestic, 5 lb bot	lb.	3.50 3.75
Linalol from Bois de Rose, 5 lb bot	lb.	3.00 5.00
Lynalyl Acetate, 1 lb bot	lb.	3.50 4.50
Benzoate, 1 lb bot	lb.	13.00 14.00
Formate, 5 lb bot	lb.	10.50 12.00
METHYL ACETOPHENONE	lb.	3.35 3.50
Anthranilate, 1 lb bot	lb.	2.45 2.50
Imported	lb.	2.70 2.75
Anthranilic Acid	lb.	11.75 12.00
Benzoate, 5 lb bot imp	lb.	1.75 1.85
Domestic, 5 lb bot	lb.	1.75 2.00
Cinnamate, 1 lb bot	lb.	3.75 4.25
Heptenone, 1 lb bot	lb	6.50 7.00
Paracresol, 1 lb bot	lb	4.50 8.00
Phenylacetate, 5 lb bot	lb	3.75 4.00
Salicylate, USP, 500 lb dr	lb.	... .40
50 lb cases	lb.	... .42
Mirbane rect, 1,000 lb drs	lb.	.12 .13
Musk Ambrette 1 lb cans	lb	7.25 7.50
Ketone 1 lb cans	lb	8.00 8.15
Xylene 5 lb cans	lb.	2.25 2.35
Nerolin 1 lb cans	lb.	1.35 1.40
Octyl Alcohol 1 lb bot	lb.	30.00 32.00
Oenanthic Ether lb bot	lb.	1.90 2.00
Oleoresin Aspidum		
USP, bot and tins	lb.	... 1.25
Capsicum, USP, bot and tins	lb.	3.50 4.25
Cubeb, USP, bot and tins	lb.	3.00 3.25
Ginger bot and tins	lb.	2.85 3.35
Malefern see Aspidum		
Orris, bot & tins	lb.	15.00 18.00
Pepper, black, USP, bot & tin	lb.	... 9.50
Vanilla, bot & tins	lb.	8.00 8.75
Paracresol Methyl Ether	lb.	6.50 6.75
Paracresyl Acetate	lb.	5.50 5.75
Para Cymene Refd 110 gal dr	gal.	2.25 2.50
PHENYLACETALDEHYDE		
50% 1 lb bot	lb.	4.75 5.00
Imported 50%	lb.	4.75 5.00
100%	lb.	8.00 8.25
Phenylacetic Acid 1 lb bot	lb.	3.50 3.75
Phenyl Diacetate 1 oz bot	oz.	3.00 3.25
1 lb bot	lb.	8.00 10.00
Imported	lb.	7.00 7.75
Phenylethyl Alcohol 1 lb bot	lb.	4.50 4.75
Phenyl Ethyl Acetate	lb.	8.25 8.75
Butyrate 1 lb bot	lb.	15.00 16.00
Formate, 1 lb bot	lb.	19.00 21.00
Propionate, 1 lb bot	lb.	16.00 18.00
Valerate, 1 lb bot	lb.	19.00 20.00
Phenylpropylalcohol, 1 lb bot	lb.	12.00 12.50
Rhodinol, 1 lb bot	lb.	6.25 20.00
Saffrol, drums	lb.	.30 .32
60 lb cans	lb.	.32 .34
Skatol, 1 oz bot	lb.	4.50 7.00
Terpinyl Acetate, 25 lb cans	lb.	.90 .95
Imported, 25 lb cans		.85 .90
TERPINEOL, CP, 1000 lb drs	lb.	.27 .29
50 lb cans	lb.	.31 .33
Absolute, 25 lb cans	lb.	.48 .50
Imported, 25 lb cans	lb.	.58 .60
Valerianic Ether see Ethyl Valerate		
Vanillin (Clove Oil), USP	lb.	5.50 5.75
(Guaiacol) USP	lb.	5.00 5.25

Essential Oils

Almond Bitter, USP, 5 lb bot	lb.	2.65 2.75
Bitter, ffPA, 5 lb bot	lb.	2.75 2.85
Sweet, 56 lb cans	lb.	.46 .49
Almond Meal, 25 lb cans	lb.	.20 .21
Amber crude, 25 lb tins	lb.	.15 .17
Rectified, 25 lb tins	lb.	.50 .53
Amber liquid, 400 lb drs	lb.	2.20 2.30
Ambergris, Black, boxes	oz.	14.00 15.00
Gray boxes	oz.	32.00 36.00
Angelica Root, 1 lb bot	lb.	25.00 35.00
Anise Tech, 400 lb drums	lb.	.46 .48
USP, 60 lb cans	lb.	.50 .52
Apricot Kernel, 50 lb cans	lb.	.26 .27
Bay, *25 lb tins N. F. V., 50.55%* Phenol	lb.	2.05 2.25
Terpeneless	lb.	5.00 5.20
BERGAMOT, 25 lb coppers	lb.	2.10 2.20
Terpeneless	lb.	8.00 12.00
Artificial, 25 lb cans	lb.	1.50 1.75
Birch, Sweet, Northern, *25 lb tins*	lb.	2.25 2.75
Southern, 25 lb tins	lb.	... 1.95
Birch Tar, rect., *5 lb bot*	lb.	.50 .55
Crude, 50 lb tins	lb.	.12 .13
Bois de Rose, tins		
Brazillian	lb.	.65 .70
Cayenne, tins	lb.	1.35 1.55
Cade, 25 lb cans	lb.	.25 .27
Cajuput, native, 50 lb tins	lb.	.57 .62
Calamus, 5 lb bot	lb.	2.75 3.00
Camphor Sassa, 1000 lb drs	lb.	.21 .22
White, 400 lb drs	lb.	.17 .18
Cans, 50 lbs	lb.	.19 .20
CANANGA, Native 25 lb tins	lb.	1.75 1.90
Rectified, 25 lb tins	lb.	2.10 2.20
Caraway, USP	lb.	1.50 1.65
Cardamon, NF, 1 lb bot	lb.	20.00 25.00
Cascarilla, USP, 1 lb bot	lb.	65.00 80.00
Cassia,		... ...
Redist, USP, 50 lb cans	lb.	1.00 1.05
Cedar Leaf, 50 lb tins	lb.	.95 1.00
Cedar Wood, light, 1000 lb drs	lb.	.37 .39
Celery, 1 lb bot	lb.	... 7.50
Chaulmoogra, USP 80 lb cases	lb.	... 1.50
Cinnamon Ceylon, 1 lb bot	lb.	9.50 13.00
Leaf, 5 lb bot	lb.	1.85 1.95
CITRONELLA Ceylon, 1000 lb drs	lb.	.42 .44
50 lb tins	lb.	.44 .46
Java, 400 lb drs	lb.	.54 .56
50 lb tins	lb.	.56 .58
Civet, Abyssin, horns	oz.	2.10 3.00
Cloves, USP, 50 lb cans	lb.	1.65 1.70
6 lb bot	lb.	2.20 2.25
Copaiba	lb.	... .50
Coriander, USP, 10 lb bots	lb.	4.75 5.25
Croton USP, 25 lb tins	lb.	4.50 5.00
Cubebs, USP, 5 lb bot	lb.	2.90 3.00
Cumin, 1 lb bot	lb.	7.00 7.50
Dill, 25 lb cans	lb.	3.75 5.25
Erigeron, 20 lb tins	lb.	1.40 1.50
EUCALYPTUS Austl, USP, 56 ib cans, cases	lb.	.40 .41
500 lb drs	lb.	.37 .38
Fennel, USP, 25 lb tins	lb.	.95 1.10
Geranium African, 25 lb tins	lb.	4.50 5.00
Bourbon, 28 lb tins	lb.	4.50 5.00
Turkish, 28 lb tins	lb.	2.25 2.50
Ginger, 1 lb bot	lb.	5.35 5.60
Gingergrass, 28 lb tins	lb.	2.50 2.70
Hemlock, 25 lb tins	lb.	1.05 1.10
Juniper Berries, USP, 25 lb tins	lb.	1.80 1.85
Wood, 50 lb tins	lb.	.50 .60
Labdanum, 5 lb bot	lb.	5.50 6.00
LAVENDER, USP, 28 lb tins	lb	2.10 2.25
Spike Spanish, 50 lb cans	lb.	.50 .60
Lemon Ital, 25 lb cans	lb.	.70 1.05
California 35 lb cbys	lb.	.65 .90
Lemongrass, native, 50 lb cans	lb.	.65 .67
Limes, expressed, 25 lb tins	lb.	14.00 17.00
Distilled, 25 lb tins	lb.	10.00 10.50
Linaloe Mex., 70 lb cases	lb.	... 1.75
Mace, distilled, 50 lb tins	lb.	1.25 1.30
Mandarin, 25 lb cases	lb.	4.50 5.00
Musk Pods Cabardine, tins	lb.	... ...
Musk Tonquin, tins, Pods	oz.	24.00 26.00
Grains Cabardine, tins	oz.	... ...
Tonquin, tins, Grained	oz.	28.00 34.00
MUSTARD, USP, 1 lb bots	lb.	9.50 10.00
Artif, USP, 5 lb bot	lb.	1.60 1.70
Neroli Bigarade, ¼ & ½ & 1 lb bot	lb.	125.00 250.00
Petale, 1 lb bot	lb.	160.00 170.00
Artificial, 1 lb bot	lb.	5.00 15.00
Nutmeg, USP, 50 lb tins	lb	1.15 1.20
ORANGE BITTER, 25 lb tins	lb	2.35 2.60
Sweet W Ind, 25 lb tins	lb	2.00 2.25
Italian, 25 lb cop	lb	2.05 2.45
Orange American, Cold pressed 25 lb tins	lb.	1.90 2.00
Distilled, 25 lb tins	lb.	1.00 1.05
Spanish, 25 lb tins	lb.	... 2.25
Oil Orris, concrete	oz.	6.00 6.25
Origanum, 50 lb cans tech	lb.	.25 .27
Parsley, 1 lb bot	lb.	9.00 9.25
Patchouli, 5 lb bot	lb.	5.00 5.25
Pennyroyal, dom, *25 lb tins*	lb.	1.90 2.10
Imported, 25 lb tins	lb.	... 1.05
Pepper Black lb.,		... 8.00
Peppermint, nat. 60 lb cases	lb.	1.75 1.85
Redis, USP, 60 lb cs	lb.	1.85 2.00
Petit Grain S A., 25 lb tins	lb.	1.25 1.35
French, 1 lb bot	lb.	4.50 4.75
Italian, 25 lb tins	lb.	2.20 2.30
Pimento, 25 lb tins	lb.	2.10 2.25
Pineedle Siberian, cans	lb.	.70 .75
Pinus, Sylvestris, 25 lb tins	lb.	1.30 2.00
Pumilio, USP, 25 lb tins	lb.	1.90 1.95
Rose Fr, 8, 16, & 32 oz pkgs	lb.	14.00 17.00
Bulg, 8, 10 & 32 oz pkgs	lb.	14.00 16.00
Rosemary, USP, 27½ lb tins	lb.	... .49
1000 lb drums	lb.	... .48
Tech, 25½ lb tins	lb.	... .40
Rue, 1 lb bot	lb.	3.00 3.10
SANDALWOOD, E Ind, USP, 100 lb case	lb.	8.25 8.50
W Indian (Amayris), 25 lb tins	lb.	2.85 2.95
Australian, Tins		5.65 5.65
Sassafras, USP, 50 lb cans	lb.	1.30 1.32
Artificial, 1000 lb drs, 60 lb cans	lb.	.27 .29
Safrol, cans	lb.	.36 .38
Savin, 50 lb tins	lb.	2.50 2.75
Snakeroot, Canada	lb.	9.00 9.25
SPEARMINT, USP, 50 lb tins	lb	2.25 2.40
Spruce, 50 lb tins	lb.	.95 1.00
Tansy, American, 25 lb tins	lb.	2.75 2.85
Tar, 50 gal bbls	lb.	.25 .30
USP, *50 gal bbls*	lb.	.75 1.50
Thyme, red, NF, 25 lb tins	lb.	.65 .68
White, NF, 25 lb tins	lb.	.83 .85
Tech, 110 lb drums	lb.	.60 .70
Turpentine, USP, rect cbys	lb.	.27 .30
Vetivert Bourbon, 10 bot	lb.	4.75 5.00
Indian, 1 lb bot	lb.	25.00 38.00
Java, 1 lb bot	lb.	13.50 14.50
Wine, heavy, 1 lb bot	lb.	1.65 1.75
WINTERGREEN Gaultheria, true, *25 lb tin*	lb.	8.00 10.00
Southern, 25 lb tins	lb.	3.75 4.00
Synthetic see Methyl salicylate		
Wormwood, dom, 25 lb tins	lb.	7.50 7.75
Wormseed, Balt, 25 lb tins	lb.	3.25 3.50
Ylang Ylang Bourbon, 10 lb tins No. 1	lb.	5.25 5.50
10 lb tins No. 2	lb.	5.20 5.25
Manila, 1 lb bot	lb.	30.00 36.00

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Foenugreek Seed
Gentian Root
Ginger
Henna
Insect Flowers
Ipecac Root
Kamala
Licorice Compound
Myrrh Gum
Nux Vomica
Orange Peel
Pyrethrum Concentrate
Quince Seed
Rhubarb Root
Sabadilla Seed
Senega
Senna
Stramonium
Turmeric
Uva Ursi
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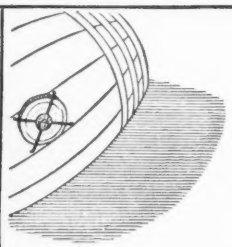
Aconite Root, USP, bags	lb.	.14	.15
Agar Agar, No. 1, bales	lb.	1.10	1.15
Agar Agar No. 2, bales	lb.	1.00	1.05
Almonds Meal	lb.	.19	.20
Aletris Root, bags	lb.	.29	.30
Alkanet Root, bags	lb	.10	.11
ALOES, Cape, 400 lb cases	lb.	.11	.12
Curacao, 100 lb cases	lb.	.25	.27
Socotrine, Whole, 300 lb cs	lb.	.32	.37
Althea Root, bags	lb.	.20	.22
Cut cases	lb.	.23	.30
Angelica Root, bags	lb.	.17	.18
Angostura Bark, bags	lb	.19	.20
Anise Star case	lb	.10	.10½
Spanish, bags	lb	.08¼	.08¾
ARABIC GUM, White, No. 1, 220 lb bags	lb.	.33	.35
Seconds, 220 lb bags	lb.	.29	.31
Sorts, Amber, 220 lb bags	lb.	.10½	.11
Powd, USP, 300 lb bbls	lb.	.17	.20
Areca Nuts, 100 lb bbls	lb.	.07½	.09½
Powd, 100 lb bbls	lb.	.12	.13
Arnica Flowers, bales	lb.	.12	.14
Root, bags	lb.	.42	.43
Arrowroot, St. Vincent, powd bbls	lb.	.08	.09
Asafoetida, 250 lb cases	lb.	.23	.24
Powd, 50 lb boxes	lb.	.35	.36
Balm Gilead Buds, bags	lb.	.30	.35
Balmony Herbs, bales	lb.	.23	.25
BALSAM COPAIBA Para, 80 lb cases	lb.	...	.23
South American, USP, 80 lb cases	lb.	...	.24
Peru, 120 lb cases	lb.	1.50	1.85
Tolu, 90 lb cases	lb.	1.05	1.10
Barberry Bark, of root, bags	lb	.20	.22
Bayberry Bark, bales	lb.	.10	.11
Wax bbls	lb.	.29	.32
BELLADONNA LEAVES, bale	lb.	.13	.15
Root, bags	lb.	.12½	.13½
Bees Wax, White, cases	lb.	.48	.52
Yellow refined cases	lb.	.34	.40
Benzoin Gum, Siam, boxes	lb.	1.20	1.30
Sumatra, cases	lb.	.35	.36
Berberis Aquafolium Root, bags	lb.	.09	.10
Beth Root, bags	lb.	.10	.11
Black Indian Hemp Root, 100 lb bags	lb.	.12	.13
Blood Root, bags	lb.	.13	.13½
Blueflag Root, bags	lb.	.16	.17
Boldo Leaves, bales	lb.	.15	.17
Boneset Herb, bales	lb.	.10	.11
Borage Flowers, bales	lb.	.15	.16
Broomtop Herb Cut, bales	lb.	.08	.09
Bryonia Root, bags	lb.	.10	.11
BUCHU LEAVES Short, 250 lb. bales	lb.	.23	.25
Long bales	lb.	.75	.80
Buckbean Leaves, bales	lb.	.08	.09
Buckthorn Bark, bags	lb.	.04½	.05
Berries, bags	lb.	.30	.35
Burdock Root, bags	lb.	.09	.10
Seed bags	lb.	.35	...
Burgundy Pitch, 110 stand gross for net	lb.	.08	.09
Imported	lb.	.10	.11
Calabar Beans, bags	lb.	.20	.21
Calamus Root, blchd cases	lb.	.37	.38
Unbleached, bags	lb.	.07	.08½
Calendula Petals, imp bales	lb.	.35	.40
Calisaya Bark, bales	lb.	.19	.20
Powdered, bbls	lb.	.25	.26
Canary Seed, South America, bags	lb.	.07½	.08
Dutch, bags	lb.	.06¼	.06½
Candelilla Wax, bags	lb.	.27	.28
Cannella Alba Bark, bales	lb.	.26	.27
Cannabis, U.S.P.	lb	.23	.30
Cantharides, Chinese, cases	lb.	.40	.45
Powdered, boxes	lb.	.65	.68
Russian, cases	lb.	.70	.75
Powdered, boxes	lb.	.75	.77
Caraway Seed, African, bags	lb.	.05	.06
Dutch, 11 lb bags	lb.	.09	.09¼
Cardamon bleached, cases	lb.	1.28	1.33
Decorticated, cases	lb.	.66	.68
Cascara Amarga, 150 lb bbls	lb.	Nom	...
So called bales	lb.	.50	.75
CASCARA SAGRADA, 1928 bark	lb.	.17	.18
1929 bark	lb.	.16½	.18
1930 bark	lb.	.13	.14
Cascarilla Bark, quills, bales	lb.	.90	1.00
Siftings, bbls	lb.	.65	...
Cassia Batavia No. 1 bbls	lb.	.08½	.09
Shortstick, bales	lb.	.07½	.07½
Batavia No. 3, bales	lb.	.06¾	.07
China Select Rolls, cases	lb.	.03¾	.04
Broken, bales	lb.	.05½	.05¾
Saigon, thin	lb.	.22	.23
Buds, cases	lb.	.12	.13
Fistula, baskets	lb.	.08	.09
Catnip, Herb, bales	lb.	.20	.21
Celery Seed, bales	lb.	.17	.17½
Ceresin Wax, White, bags	lb.	.15	.20
Yellow 200 lb. bags	lb.	.11	.14
Imp. 100 lb. bags	lb.	.25	.38
CHAMOMILE FLOWERS Roman, bales	lb.	.40	.45
Hungarian, cases	lb.	.24	.25
Charcoal Willow, powd, bbls	lb.	06	.06½
Wood, powd, bbls	lb.	.04	.05
Chestnut Bark	lb.	.07	.08
Leaves bales	lb.	.05	.05½
Chicle Gum, lb bbls	lb.	.58	.75
Chiretta, bales	lb.	.16	.19
Cinnamon, Ceylon, No. 1, bales	lb.	.17	.18
No. 2 bales	lb.	.13½	.14
No. 3 bales	lb.	.13	.14
Clover Tops, Red, bags	lb.	.08	.09
Cloves Zanzibar, 135 lb bbl	lb.	.25	.26
Cochineal, Black	lb.	.69	...
Silver	lb.	.85	...
Cohosh Root, Black, bags	lb.	.06½	.07½
Blue, bags	lb.	.08	.09
Colchicum Root, bags	lb.	.08	.09
Seed, bags	lb.	.75	.80
COLOMBO ROOT, bags	lb.	.07	.08
Colocynth Pulp, bales	lb.	.19	.20
Coltsfoot Leaves, bags	lb.	.08	.09
Comfrey Root, bags	lb.	.12	.13
Condurango Bark, bags	lb.	.10	.11
Coriander Seed, Morocco, bags	lb.	.02¾	.03
Bleached, bags	lb.	.05½	.06
Corn Silk, bales	lb.	.06	.07
Cotton Root Bark, bales	lb.	.09	.10
Cowhage, 1 oz tins	lb.	1.00	...
Cramp Bark so called bales	lb.	.05½	.06
True, bags	lb.	.32	.37
Cranesbill Root, bags	lb.	.10	...
CUBEB BERRIES, XX bags	lb.	.32	.33
Powdered, boxes	lb	.34	.35
Culvers Root, bags	lb.	.15	.16
Cumin Seed, Malta, bags	lb.	.13½	.13¾
Morocco, bags	lb.	.12⅜	.12¾
Cuttlefish, Bone Trieste, Straps	lb.	.22	.24
French, boxes	lb.	.22	.23
Powdered, bbls	lb.	.09	.10
Broken, bales	lb.	.07	...
Damiana Leaves, bales	lb.	.15	.16
Dandelion Root, Imp. bags	lb.	.16	.18
Deer Tongue Leaves, bales	lb.	.11	.13
Digitalis Leaves, bales	lb.	.12	.13
Dogwood Bark, Jamaica bags	lb.	.08½	.09½
American bales	lb.	.06½	...
Doggrass Root, USP, cut bags	lb.	.20	.21
Dragons Blood Mass, cases	lb.	.65	.70
Reeds, boxes	lb.	...	1.20
Echinacea Root, bags	lb.	.18	.19
Elcampane Root, bags	lb.	.07	.08
Elder Flowers, bags	lb.	.28	.32
Elemi Gum, 85 lb cases	lb.	.26	.28
Elm Bark, bundles	lb.	.20	.21
Grinding bags	lb.	.13½	.14
Powdered, bbls	lb.	.17	.18
Ephedra Vulgaris, bales	lb.	.07	.08
ERGOT, 150-200 lb bags	lb.	.47	.65
Eucalyptus Leaves, bales	lb.	.05½	.06½
Euphorbia Pilulifera, Herb, bags	lb	.05½	.08½
Euphorbium Gum, cases	lb.	.14	.20
Fennel Seed, French, bags	lb.	.08¼	.08¾
German bags	lb.	.09	.11
Foenugreek Seed, 200 lb bags	lb.	.04½	.04¾
Fish Berries, 100-125 lb bag	lb.	.06	.07½
Flax Seed, Whole 182 lb bbls	lb.	14.50	15.25
Ground, 180 lb bbls	lb.	.06	.06½
Fringe Tree Bark or Root bags	lb.	.18	.20
Fumigating Pastiles, boxes	lb.	.30	.35
Galangal Root, bags	lb.	.08	.09
Galbanum Gum, cans	lb.	.90	1.00
Gamboge Gum, 100 lb cases	lb.	.85	.90
Powdered, cases	lb.	...	1.05
Gelsemium Root, bags	lb.	.06½	.07½
GENTIAN ROOT, bags	lb.	.07½	.08½
Ground bbls, boxes	lb.	.10	.11
Powdered, bbls, boxes	lb.	.10	.11
Ginger, African, bags	lb.	.05½	.06
Jamaica Grinding bags	lb.	.09½	.10
Cochin ABC & Lemon, bags	lb.	.12	.12½
Ginseng Root, cultivated cs	lb.	8.00	10.00
Wild Southern, cases	lb.	...	16.00
Golden Seal Root, bags	lb.	1.10	1.15
Powdered, boxes	lb.	1.50	1.55
Herb, barrels	lb.	1.25	1.30
Grains of Paradise, bags	lb.	.12	.17
Grindelia Robusta, Herb, bale	lb.	.08	.09
Guaiac Gum, 150 lb cases	lb.	.35	.36
Strained 75 lb cases	lb.	.70	.75
Guarana, tin cases	lb.	1.00	1.25
Hellebore Root, Black, bbls	lb.	.05½	.06
White, 250 lb bbls	lb.	.07½	.08½
Powdered	lb.	.11	.12
Helonias Root, bags	lb.	.46	.48
Hemp Seed, bags	lb.	.03½	.03¾
Henbane Leaves, USP, bales	lb.	.10	.11
HENNA LEAVES, bales	lb.	.10	.11
Powdered	lb.	.14	.15
Hops, bales	lb.	...	.23
Horehound, Herb, bales	lb.	.07	.08
Hydrangea Root, bales	lb.	...	.07½
IPECAC ROOT, Carteagna, bags	lb.	1.20	1.25
Powdered, 220 lb bbls	lb.	1.40	1.45
Rio Whole, bags	lb.	2.30	2.35
Powdered, 110 lb bbls	lb.	2.50	2.55
Isinglass, American, 130 lb cases	lb.	.95	1.00
Russian (Beluga), boxes	lb.	4.50	...
Jaborandi Leaves, bales	lb.	.10	.10½
Jalap Root, Whole, 150 lb bag	lb.	.20	.22
USP, Powd, 250 lb bbls	lb.	.26	.29
Japan Wax 24 lb cases	lb.	.18½	.19
JUNIPER BERRIES, 125 lb bags	lb.	.05	.05½
Kamala, boxes	lb.	.80	.85
Karaya Gum, Powdered, bbls	lb.	.12	.20
Kava Kava Root, bags	lb.	.13	.14
Kino Gum, Black, cases	lb.	.50	.55
Kola Nuts, 150 lb bags	lb.	.08	.09
Lady Slipper Root, bags	lb.	.50	.55
Larkspur Seed, bags	lb.	.35	.40
Laurel Berries, bags	lb.	.08	.09
Leaves, Greek, bags	lb.	.05½	.06½
Italian, bales	lb.	.08	.09
Lavender Flowers, Ordinary	lb.	.22	.24
Selected	lb.	.32	.33
Lemon Peel, bags	lb.	.09	.10
LICORICE ROOT, Whole bbls	lb.	.12½	.18½
Spanish Natural bales	lb.	.05½	.07
Powdered, bbls	lb.	.08	.10
Selected 2 & 5 lb bdls	lb.	.12	.15
Cutting, 125 lb bags	lb.	.06	.06½
Turkish, 150 lb bales	lb.	.05	...
Linden Flowers with leaves, bales	lb.	.15	.16
Without leaves, bales	lb.	.21	.22
Liverwort Leaves, bales	lb.	.15	.16
Lobelia, Herb, bales	lb.	.09	.10
Seed, bags	lb.	.45	.50
Lovage Root, Imp., bags	lb.	.25	.27
Lupulin N. F., tins	lb.	1.40	1.45
Lycopodium, 88 lb. cases	lb.	.40	.42
MACE SIAUW, No. 1, cases	lb.	.45	.46
Banda No. 1, cases	lb.	.53	.54
Batavia No. 2, cases	lb.	.34	.35
Malva Flowers, Blue, bales	lb.	.40	.42
Black, bales	lb.	.28	.43
Leaves, bales	lb.	.13	.14
Manaca Root, bales	lb.	.28	.29
Manna, Large Flake, cases	lb.	.65	.67
Small Flake, cakes	lb.	.40	.48
Sorts, cases	lb.	.45	.50
Mandrake Root, bags	lb.	.10	.11
Marjoram, Herb	...	...	...
French, No. 1 bales	lb.	.18	.18½
German, bales	lb.	.16	.17
Mastic Gum, 120 lb cans	lb.	.65	.70
Matico Leaves, bales	lb.	.18	.21
Mezereon Bark, bags	lb.	.15	.16
Millet Seed, Yellow, bags	lb.	.02¾	.03
Montan Wax, Crude, bags	lb.	.06½	.07
Bleached, bags	lb.	.25	.28
Moss, Iceland, bales	lb.	.10	.12
Irish, Bleached, bales	lb.	.11½	.14½
Mullein Flowers, tins	lb.	.85	.87
Leaves, bales	lb.	.07½	.08
Musk Root, Russian, bags	lb.	.07½	.08½
Myrrh Gum, 200 lb, cases	lb.	.18	.20
Nutgalls, Chinese, bags	lb.	.22	...
Aleppy, bags	lb.	...	Nom.
Powdered, bags	lb.	.23	...
Nutmegs, 110's cases	lb.	.16	.16½
75's & 80's cases	lb.	.19	.20
Grinding, bags	lb	.19	.20
NUX-VOMICA Buttons, bag	lb.	.05	.06
Powdered, 200 lb bbls	lb.	.08	.09
Oak Bark, bags	lb.	.06	.06½
Olibanum Gum, 280 lb cases Siftings	lb.	.10	.11½
Tears, No. 1 Extra	lb.	.25	.26
No. 2	lb.	.17	.19
No. 3	lb.	.14	.16
Opium Gum, USP, cases	lb.	12.00	13.00
Granular, cans	lb.	13.00	14.00
Powdered, USP, cans	lb.	13.00	14.00
Orange Flowers, cases	lb.	.30	.35
Peel, Bitter, bags	lb.	.08	.09
Sweet bags	lb.	.08	.09
ORRIS ROOT, Flor. bid. bags	lb.	.16	.17
Powdered, 200 lb bbls	lb.	.19	.21
Verona, bags	lb.	.13	.14
Powdered, 200 lb bbls	lb.	.18	.19
Fingers, boxes	lb.	.95	1.00
Ozokerite Wax, Brown, Hard	lb.	...	...
Bags	lb.	.24	.25
Green, Hard, bags	lb.	.30	.31
Yellow, Refined, bags	lb.	.37	...
Papain, Crude, 150 lb cases	lb.	2.35	2.40
Pure, Powdered, 10 lb bot	lb.	2.50	2.55
Paprika, bags	lb.	.20½	.20½
Pareira Brava Root, bags	lb.	.14	.15
Passion Flower, bales	lb	.05½	.06½
Patchouli Leaves, bales	lb.	.20	.21
Pennyroyal, Herb, 100 lb bags	lb.	.07	...
Leaves, 100 lb bags	lb.	.20	.21

FABRITIUS, OSLO



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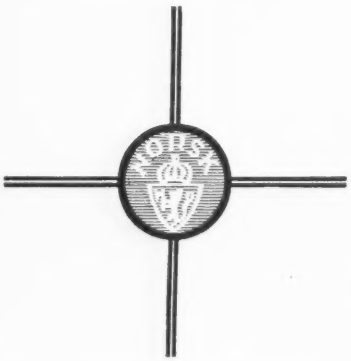

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Magnesium Chloride	Epsom Salts
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Benzoic Acid, Howards'	Glycerine, C. P.
Thymol, Howards'	Glycerine, B. P.
Bicarbonate Potash	Manganese Sulphate
Barium Nitrate	

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NEW YORK CITY

PEPPERMINT LEAVES, Imp bales	lb.	.65	.75
Domestic, bales	lb.	.28	.29
Pichi Leaves, bags	lb	.11	.12
Pimento Select, bags	lb.	.07½	.08
Pink Root, True, bags	lb.	.42	.44
Pleurisy Root, bags	lb.	.17	.18
Poke Berries, bags	lb.	...	.18
Root, 200 lb bales	lb.	.07	.07½
Pomegrant Bark of Root, bags	lb.	.30	.35
Bark of Fruit, bags	lb.	.25	.30
Bark of Tree, bags	lb.	.18	.22
POPPY FLOWERS, Red, bags	lb.	.45	.50
Prickly Ash Bark	lb.	.14	.17
Southern bags	lb.	.11	.11½
Northern, bags	lb.	.15	.16
Berries, bags	lb.	.21	.22
Prince's Pine, bales	lb.	.18	.23
Psyllium Seed, Black, bags	lb.	.56	.58
Pulsatilla, Herb, bags	lb.	.10	.11
Pumpkin Seed, bags	lb.	.12	.13
Pyrethrum Flowers	lb.	.15	.16
Pwd., pure, 200 lb.bbls.	lb.	.22	.23
Quassia Chips, bags	lb.	.06½	...
Quebracho, bulk, 125 lb. bbl.	lb.	.25	.26
Quince Seed, bags	lb.	1.50	1.60
Persian, bags	lb	1.95	2.00
Rape Seed, South American, bags	lb.	.05½	.06
Dutch, bags	lb.	.06	.06½
Raspberries, Dried, bbls.	lb.	.80	.85
Red Saunders, bags	lb.	.08	...
Rhatany Root, bags	lb.	.10	.11
Rhubarb Root, HD, cases	lb.	.16	.18
Powdered, bbls	lb	.21	.23
Rosemary Leaves, bales	lb.	.05	.05½
Flowers, cases, bales	lb.	.25	.30
Rose Petals, pale	lb.	.20	.21½
Red	lb.	.70	.75
Rue, Herb, bales	lb.	.18	.20
Sabadilla Seed, bags	lb.	.21	.22
Powdered, bbls	lb.	.26	.27
SAFFRON FLOWERS, American, bales	lb.	.24	.25
Valencia, 1 lb cans	lb.	11.75	12.00
Sage Dalmatian, bales	lb.	.05½	.06
Sandarac Gum, 300 lb bbls.	lb.	.35	.40
Sarsaparilla Root, Honduras, bales	lb.	.45	.46
Mexican, bales	lb.	.19	.21
Sassafras Bark, Ordinary, bales	lb.	.10	.12
Select, bales	lb.	.17	.19
Savory Leaves, bale	lb.	.07½	.08
Saw Palmetto Berries, bags	lb.	.07½	.08½
Scammony Resin, boxes	lb.	1.30	1.35
Root, bags	lb.	.08½	...
Senega Root, bags	lb.	.65	.70
SENNA ALEX., 150 lb cases	lb.	.25	.30
Half leaf 150 lb cases	lb.	.12½	.14½
Sifting, 400 lb bales	lb.	.11	.11½
Tinnevelly, Bold, 350 lb bales	lb.	.16	.18
Medium Leaf	lb.	.11	.12
Small Leaf	lb.	.07	.09
Pods, 350 lb	lb.	.19	.20
Powdered, 200 lb	lb.	...	.10
Serpentaria Root, bags	lb.	.42	.45
Simaruba Bark, bales	lb.	.25	.27
Skullcap Leaves, Eastern, bales	lb.	.50	.55
Western, bales	lb.	.30	.31
Skunk Cabbage, Striped, bales	lb.	.12	.14
Snake Root, Canada Natural, bags	lb.	.26	.27
Canada, Stripped, bags	lb.	...	.50
Soap Bark	lb.	.12	.13
Cut, 125-175 lb bags	lb.	.08½	.09
Crushed, 200 lb bbls.	lb.	.16	...
Powdered, bbls.	lb.	.12	.13
Spearmint Leaves, American, bales	lb.	.25	.26
Spermaceti, blocks, cakes, cases	lb.	.32	.35
Spikenard Root, bags	lb.	.13	.13½
Squaw Vine, bales	lb.	.14	.15
Squills, White	lb.	.05	.06
Powdered, bulk	lb.	.23	.25
Stavesacre Seed, bags	lb.	.14	.15
Stillingia Root, bags	lb.	.08	.09
Stone Root, bags	lb.	.08	.09
St. Ignatius Beans, bags	lb.	...	Nom.
St. John's Bread, bags	lb.	...	.09
STRAMONIUM LEAVES, bales	lb.	.12	.14
Seed, bags	lb.	.07½	...
Strophanthus Seed, Kombe, bags	lb.	2.00	2.25
Styrax Liquid, Artificial	lb.	.26	.35
Genuine, USP	lb.	.38	.43
Sunflower Seed, bags Calif.	lb.	.04½	.05
South American, bags	lb.	.07	.07½
Tamarinds, bbls.	lb.	.07	.08
Kegs	keg	3.85	...
Tansy, Herb, bales	lb.	.14	.15
Thus Gum, 280 lb bbls.	lb.	.08	.17
THYME, Spanish, bales	lb.	.08	.08½
French, bales	lb.	.07	.07½
Tonga Root, bundles	lb.	.25	.26
Bark, bundles	lb.	.25	.26
Tonka Beans, Angostura Cases		1.75	1.85
Para cases	lb.	.90	...
Surinam cases	lb.	1.00	1.10
Tragacanth Gum, No 1, 100 lb cases	lb.	1.40	1.45
No. 2	lb.	1.25	1.35
No. 3	lb.	1.10	1.20
Powdered, 50 lb boxes	lb.	.85	.95
Turkish cases	lb.	.50	.90
Turmeric Root Madras, bags	lb.	.07¾	.08½
Aleppy bags	lb.	.07	.07½
Powdered	lb.	.13	.15
China bags	lb.	.11	.12
Turpentine Venice True, 80 lb cases	lb.	.32	.40
Artificial, 80 lb cases	lb.	.17	.18
Uva Ursi Leaves, bales	lb.	.05	.05½
Valerian Root, Belgium bags	lb	.11	.13
VANILLA BEANS, Mexican, whole, cases	lb.	4.00	4.50
Cuts, cases	lb.	2.50	2.65
Bourbon, cases	lb.	1.10	1.60
Vetivert Root, 100 lb bags	lb.	.25	...
Violet Flowers, bags	lb.	1.00	1.05
Wahoo Bark of Root, bags	lb.	.42	.45
Bark of Tree, bags	lb.	.20	.21
White Pine Bark, Roseed, bags	lb.	.06	.08
White Poplar Bark, bags	lb.	.06	.07½
Wild Cherry Bark, Natural thin, Green	lb.	.09	.10
Rossed bales	lb.	.11	.12
Thick Rossed, bales	lb.	.08	...
Wild Indigo Root, bags	lb.	.13	.14
Willow Bark, bags	lb.	.05	.05½
White, bags	lb.	.15	...
Witch Hazel Bark, bags	lb.	.05	.06
Leaves, bales	lb.	.07	.08
Wormseed, American, bags	lb.	...	.08
Wormwood, Herb, Imp., bales	lb.	.08	.08½
Yellow Dock Root, bags	lb.	.08	.09
Yerba Mate, bags	lb.	.25	.27
Santa, bags	lb.	.09	.10

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